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March 2005

The Sloan Canyon National Conservation Area

Draft Resource Management Plan and Environmental Impact Statement

















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BUREAU OF LAND MANAGEMENT
Las Vegas Field Office
4701 N. Torrey Pines Drive
Las Vegas, Nevada 89130-2301

TAKE PRIDE IN AMERICA

In reply refer to: 1610-5.G.1.1

March 2005

Dear Reader:

Enclosed for review and comment is the Sloan Canyon National Conservation Area (NCA) Draft Resource Management Plan/Environmental Impact Statement (RMP/EIS). This document was prepared by the Bureau of Land Management (BLM) in concert with cooperating agencies, as well as from public comments received during the scoping phase of this planning effort. The Draft RMP/EIS was prepared to meet the requirements of the Clark County Conservation of Public Land and Natural Resources Act of 2002 (Clark County Act), the Federal Land Policy and Management Act of 1976, and the National Environmental Policy Act of 1969.

BLM is interested in your comments on the Draft RMP/EIS. Your comments will help formulate the Proposed RMP/Final EIS, which is the next phase of the planning process. Comments on the Draft RMP/EIS will be accepted through June 23, 2005. Comments can be submitted by mail: Bureau of Land Management, Las Vegas Field Office, Attn: Sloan Canyon NCA, 4701 N. Torrey Pines Drive, Las Vegas, Nevada 89130-2301; web site: http://www.sloancanyon.org; and fax: (702) 515-5023 (Attn: Sloan Canyon NCA).

Public hearings to take written and oral comments will be held at:

Las Vegas	May 10	6:00 – 8:00 pm	BLM Las Vegas Field Office 4701 N. Torrey Pines Drive
Henderson	May 11	6:00 – 8:00 pm	Paseo Verde Library 280 S. Green Valley Parkway

Your comments on the content of this document are important to the success of this planning effort. Comments are most useful if they focus on the specific management actions being considered or specific aspects of the analyses. Responses to the comments will be published as part of the Proposed RMP/Final EIS, which is expected to be completed in the Fall of 2005, and a Final RMP/Record of Decision will be issued shortly thereafter.

Sincerely,

Scott E Stevens

for Juan Palma
Field Manager, Las Vegas

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SLOAN CANYON NATIONAL CONSERVATION AREA

DRAFT RESOURCE MANAGEMENT PLAN
AND
ENVIRONMENTAL IMPACT STATEMENT

BUREAU OF LAND MANAGEMENT
Las Vegas Field Office
Las Vegas, Nevada

March 2005

TABLE OF CONTENTS

EXECUTIVE SUMMARY **ES-1**
1. PURPOSE AND NEED **1-1**
1.1 BACKGROUND 1-3
1.2 DESCRIPTION OF THE NATIONAL CONSERVATION AREA 1-4
1.3 PURPOSE AND NEED FOR THE RESOURCE MANAGEMENT PLAN 1-6
1.3.1 Legislative Requirements 1-7
1.3.2 National Landscape Conservation System 1-7
1.4 THE PLANNING PROCESS 1-8
1.4.1 Planning Issues 1-8
1.4.2 Planning Criteria 1-10
1.5 RELATIONSHIP TO STATUTES, REGULATION, AND POLICY 1-10
1.6 CONSISTENCY WITH BLM AND OTHER AGENCY PLANS 1-11

2. ALTERNATIVES **2-1**
2.1 ALTERNATIVE DEVELOPMENT 2-2
2.2 OVERVIEW OF THE ALTERNATIVES 2-3
2.2.1 Alternative A: No Action 2-3
2.2.2 Alternative B: Emphasize Natural Character 2-3
2.2.3 Alternative C: Allow Moderate Developed Use While Maintaining Natural Character 2-4
2.2.4 Alternative D: Emphasize Developed Uses 2-4
2.2.5 The Preferred Alternative 2-4
2.3 MANAGEMENT EMPHASIS AREAS 2-5
2.3.1 Management Emphasis Area Zone Objectives 2-5
2.4 RESOURCE GOALS AND OBJECTIVES 2-6
2.4.1 Recreation 2-6
2.4.2 North McCullough Wilderness Area 2-7
2.4.3 Cultural Resources 2-7
2.4.4 Special Designations—Areas of Critical Environmental Concern 2-8
2.4.5 Visual Resources 2-8
2.4.6 Interpretation 2-8
2.4.7 Facilities 2-9
2.4.8 Lands and Realty 2-9
2.4.9 Transportation (Licensed Motorized Vehicles) 2-9
2.4.10 Vegetation Management (Including Special Status Species) 2-9
2.4.11 Wildlife Management (Including Special Status Species) 2-10
2.4.12 Wildland Fire Management 2-11
2.4.13 Water Resources and Quality 2-11
2.4.14 Air Quality 2-11
2.4.15 Livestock Grazing 2-11
2.4.16 Geology and Soils 2-11
2.4.17 Minerals 2-12
2.4.18 Abandoned Mines 2-12
2.4.19 Hazardous Materials 2-12
2.5 MANAGEMENT DIRECTION COMMON TO ALL ALTERNATIVES 2-12
2.5.1 Recreation 2-12
2.5.2 North McCullough Wilderness Area 2-14
2.5.3 Cultural Resources 2-15
2.5.4 Visual Resources 2-16
2.5.5 Interpretation 2-16

2.5.6 Lands and Realty 2-16
2.5.7 North McCullough Road 2-17
2.5.8 Transportation 2-19
2.5.9 Vegetation Management 2-19
2.5.10 Wildlife Management 2-20
2.5.11 Wildland Fire Management 2-20
2.5.12 Livestock Grazing 2-21
2.5.13 Abandoned Mines 2-21
2.6 ALTERNATIVE A: NO ACTION 2-21
2.6.1 Recreation Opportunity Spectrum 2-21
2.6.2 Recreation 2-21
2.6.3 North McCullough Wilderness Area 2-27
2.6.4 Cultural Resources 2-29
2.6.5 Special Designations—Areas of Critical Environmental Concern 2-29
2.6.6 Visual Resources 2-31
2.6.7 Interpretation 2-31
2.6.8 Facilities 2-31
2.6.9 Lands and Realty 2-31
2.6.10 Transportation 2-34
2.6.11 Vegetation Management 2-34
2.6.12 Wildlife Management 2-34
2.6.13 Livestock Grazing 2-34
2.6.14 Geology and Soils 2-36
2.7 ALTERNATIVE B: EMPHASIZE NATURAL CHARACTER 2-36
2.7.1 Management Emphasis Areas (Alternative B) 2-36
2.7.2 Recreation (Alternative B) 2-36
2.7.3 North McCullough Wilderness Area (Alternative B) 2-41
2.7.4 Cultural Resources (Alternative B) 2-44
2.7.5 Special Designations—Areas of Critical Environmental Concern (Alternative B) 2-45
2.7.6 Visual Resources (Alternative B) 2-45
2.7.7 Interpretation (Alternative B) 2-45
2.7.8 Facilities (Alternative B) 2-45
2.7.9 Lands and Realty (Alternative B) 2-49
2.7.10 Transportation (Licensed Motorized Vehicles [Alternative B]) 2-49
2.7.11 Vegetation Management (Including Special Status Species [Alternative B]) 2-52
2.7.12 Wildlife Management (Including Special Status Species [Alternative B]) 2-52
2.7.13 Livestock Grazing (Alternative B) 2-54
2.7.14 Geology and Soils (Alternative B) 2-54
2.8 ALTERNATIVE C: MODERATE DEVELOPED USE (PREFERRED ALTERNATIVE) 2-54
2.8.1 Management Emphasis Areas 2-55
2.8.2 Recreation 2-55
2.8.3 North McCullough Wilderness Area 2-65
2.8.4 Cultural Resources 2-70
2.8.5 Special Designations—Areas of Critical Environmental Concern 2-71
2.8.6 Visual Resources 2-71
2.8.7 Interpretation 2-73
2.8.8 Facilities 2-73
2.8.9 Lands and Realty 2-75
2.8.10 Transportation 2-76
2.8.11 Vegetation Management 2-76
2.8.12 Wildlife Management 2-79
2.8.13 Livestock Grazing 2-80

2.8.14 Geology and Soils 2-80
2.9 ALTERNATIVE D: EMPHASIZE DEVELOPED USES 2-80
2.9.1 Management Emphasis Areas 2-81
2.9.2 Recreation 2-81
2.9.3 North McCullough Wilderness Area 2-92
2.9.4 Cultural Resources 2-97
2.9.5 Special Designations—Areas of Critical Environmental Concern 2-98
2.9.6 Visual Resources 2-98
2.9.7 Interpretation 2-98
2.9.8 Facilities 2-100
2.9.9 Lands and Realty 2-102
2.9.10 Transportation 2-103
2.9.11 Vegetation Management 2-103
2.9.12 Wildlife Management 2-106
2.9.13 Livestock Grazing 2-106
2.9.14 Geology and Soils 2-107
2.10 MANAGEMENT ACTIONS CONSIDERED BUT NOT INCLUDED 2-107
2.10.1 Extensive OHV Trail System 2-107
2.10.2 Recreational Target Shooting Facilities 2-107

3. AFFECTED ENVIRONMENT 3-1
3.1 PHYSIOGRAPHY 3-1
3.2 CLIMATE 3-1
3.3 RECREATION 3-2
3.3.1 Recreation Use by Area 3-4
3.3.2 Special Recreation Permits 3-7
3.4 NORTH MCCULLOUGH WILDERNESS AREA 3-7
3.4.1 Wilderness Characteristics 3-7
3.4.2 Wilderness Recreation Use 3-9
3.4.3 Disturbance, Development, and Wilderness Impacts 3-9
3.4.4 Regulatory Framework 3-12
3.5 CULTURAL RESOURCES 3-12
3.5.1 Cultural Context 3-12
3.5.2 Cultural Resource Inventories 3-14
3.5.3 Sensitivity Model 3-15
3.5.4 Cultural Affiliation 3-16
3.6 SPECIAL DESIGNATIONS – AREAS OF CRITICAL ENVIRONMENTAL CONCERN 3-16
3.7 VISUAL RESOURCES 3-16
3.7.1 Current Management 3-18
3.7.2 Visual Resource Inventory 3-19
3.8 INTERPRETATION 3-21
3.9 FACILITIES 3-21
3.10 LANDS AND REALTY 3-21
3.10.1 Existing Rights-of-Way 3-21
3.10.2 City of Henderson Rights-of-Way 3-23
3.10.3 Unauthorized Uses 3-24
3.10.4 Filming and Photography 3-24
3.11 TRANSPORTATION (LICENSED MOTORIZED VEHICLES) 3-24
3.12 VEGETATION MANAGEMENT 3-24
3.12.1 Vegetation Communities 3-27
3.12.2 Special Status Species 3-29
3.12.3 Noxious and Invasive Weeds 3-32

3.13 WILDLIFE MANAGEMENT 3-34
3.13.1 Regulatory Framework 3-34
3.13.2 Potential Wildlife Species 3-35
3.13.3 Special Status Species 3-36
3.13.4 Sloan Canyon Potential Habitat Models 3-45
3.14 WILDLAND FIRE MANAGEMENT 3-55
3.15 WATER RESOURCES AND QUALITY 3-56
3.15.1 Groundwater Resources 3-58
3.15.2 Water Quality 3-58
3.16 AIR QUALITY 3-58
3.16.1 Ambient Air Quality 3-60
3.16.2 Ambient Air Quality Concentrations 3-60
3.16.3 Criteria Pollutants Designated as Nonattainment 3-61
3.16.4 Air Quality Modeling 3-62
3.17 GRAZING 3-62
3.18 GEOLOGY AND SOILS 3-65
3.18.1 Geology 3-65
3.18.2 Soils 3-65
3.19 MINERALS 3-68
3.20 ABANDONED MINES 3-70
3.21 HAZARDOUS MATERIALS MANAGEMENT 3-72
3.22 SOCIOECONOMICS 3-72
3.22.1 Demographic Characteristics 3-72
3.22.2 Economic Characteristics 3-74
3.22.3 Social Conditions 3-76
3.23 ENVIRONMENTAL JUSTICE 3-78

4. ENVIRONMENTAL CONSEQUENCES 4-1
4.1 INTRODUCTION 4-1
4.1.1 Methodology 4-1
4.1.2 Impact Terminology 4-2
4.2 IMPACTS FROM NORTH MCCULLOUGH ROAD RIGHTS-OF-WAY 4-3
4.3 IMPACTS TO RECREATION 4-6
4.4 IMPACTS TO THE NORTH MCCULLOUGH WILDERNESS AREA 4-31
4.5 IMPACTS TO CULTURAL RESOURCES 4-49
4.6 IMPACTS TO VISUAL RESOURCES 4-64
4.7 IMPACTS TO INTERPRETATION 4-74
4.8 IMPACTS TO FACILITIES 4-82
4.9 IMPACTS TO LANDS AND REALTY 4-90
4.10 IMPACTS TO TRANSPORTATION (LICENSED MOTORIZED VEHICLES) 4-94
4.11 IMPACTS TO VEGETATION MANAGEMENT 4-97
4.12 IMPACTS TO WILDLIFE MANAGEMENT 4-106
4.13 IMPACTS TO AIR QUALITY 4-120
4.14 IMPACTS TO LIVESTOCK GRAZING 4-122
4.15 IMPACTS TO SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE 4-124
4.16 CUMULATIVE IMPACTS 4-130
4.16.1 Cumulative Analysis Methodology 4-131
4.16.2 Temporal and Spatial Boundaries 4-131
4.16.3 Past, Present, and Reasonably Foreseeable Future Actions 4-132
4.16.4 Cumulative Impacts By Resource Category 4-133
4.17 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES 4-137
4.18 UNAVOIDABLE ADVERSE IMPACTS 4-137

4.19 RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES AND LONG-TERM PRODUCTIVITY 4-137

5. CONSULTATION AND COORDINATION 5-1
5.1 INTRODUCTION 5-1
5.2 NOTICE OF INTENT 5-1
5.3 PUBLIC SCOPING 5-1
5.3.1 Advertisements and Announcements 5-2
5.3.2 Web Site 5-2
5.3.3 Planning Mailers 5-2
5.3.4 Scoping Meetings 5-3
5.3.5 Scoping Results 5-4
5.4 COMMUNITY INFORMATION MEETING 5-4
5.5 AGENCY CONSULTATION AND COORDINATION 5-4
5.5.1 Native American Tribes 5-6
5.5.2 Meeting Summary 5-7
5.6 LIST OF PREPARERS AND REVIEWERS 5-8

LIST OF APPENDICES

Appendix A Applicable Laws and Management Guidance
Appendix B Nevada Rangeland Health Standards and Guidelines
Appendix C Recreation Monitoring Plan
Appendix D Cultural Resources and Management Plan
Appendix E Interpretative Strategy
Appendix F Litter Cleanup Plan and Public Awareness Campaign
Appendix G Black Mountain Communication Site Management Plan
Appendix H Biological Management Strategy
Appendix I Wilderness Management Plan
Appendix J Visual Resource Management
Appendix K Vegetation Restoration Strategy
Appendix L Notice of Intent
Appendix M Agency Correspondence

LIST OF FIGURES

Figure 2.1. The City of Henderson North McCullough Road and Trail Potential Right-of-Way Locations 2-18
Figure 2.2. Recreation Opportunity Spectrum (No Action Alternative) 2-22
Figure 2.3. Off-Highway Vehicle Area Designation (No Action Alternative) 2-25
Figure 2.4 BLM Las Vegas Field Office Shooting, Camping, and OHV Closures 2-26
Figure 2.5. Sloan Canyon Rock Art Site Area of Critical Environmental Concern (No Action Alternative) 2-30
Figure 2.6. Visual Resource Management Classes (No Action Alternative) 2-32
Figure 2.7. Sloan Canyon Rights of Way (No Action Alternative) 2-33
Figure 2.8. Sloan Canyon Roads, Licensed Motor Vehicles (No Action Alternative) 2-35
Figure 2.9. Management Emphasis Areas (Alternative B) 2-37
Figure 2.10. Hiking (Alternative B) 2-39
Figure 2.11. Sloan Canyon Rock Art Site Area of Critical Environmental Concern (Alternative B) 2-46
Figure 2.12. Visual Resource Management Classes (Alternative B) 2-47
Figure 2.13. Proposed Facilities (Alternative B) 2-48
Figure 2.14. Sloan Canyon Rights of Way (Alternatives B, C, and D) 2-50
Figure 2.15. Sloan Canyon Roads, Licensed Motor Vehicles (Alternative B) 2-51
Figure 2.16. Vegetation Disturbance Management (Alternative B) 2-53
Figure 2.17. Management Emphasis Areas (Alternative C) 2-56
Figure 2.18. Hiking (Alternative C) 2-59
Figure 2.19. Equestrian Use (Alternative C) 2-61
Figure 2.20. Mountain Biking (Alternative C) 2-62
Figure 2.21. Camping (Alternative C) 2-64
Figure 2.22. Designated Hiking Trails 2-68
Figure 2.23. Visual Resource Management Classes (Alternative C) 2-72
Figure 2.24. Proposed Facilities (Alternative C) 2-74
Figure 2.25. Sloan Canyon Roads, Licenses Motor Vehicles (Alternative C) 2-77
Figure 2.26. Vegetation Disturbance Management (Alternative C) 2-78
Figure 2.27. Management Emphasis Areas (Alternative D) 2-82
Figure 2.28. Hiking (Alternative D) 2-86
Figure 2.29. Equestrian Use (Alternative D) 2-87
Figure 2.30. Mountain Biking (Alternative D) 2-88
Figure 2.31. Off-Highway Vehicle Route Designations (Alternative D) 2-90
Figure 2.32. Camping (Alternative D) 2-91
Figure 2.33. Visual Resource Management Classes (Alternative D) 2-99
Figure 2.34. Proposed Facilities (Alternative D) 2-101
Figure 2.35. Sloan Canyon Roads, Licensed Motor Vehicles (Alternative D) 2-104
Figure 2.36. Vegetation Disturbance Management (Alternative D) 2-105

Figure 3.1. BLM Las Vegas Field Office Shooting, Camping, and OHV Closures 3-3
Figure 3.2. Disturbed Areas on the NCA 3-5
Figure 3.3. North McCullough Wilderness Area 3-8
Figure 3.4. Disturbed Areas within the North McCullough Wilderness 3-10
Figure 3.5. Sloan Canyon Rock Art Site Area of Critical Environmental Concern 3-17
Figure 3.6. Visual Resource Inventory Classes 3-20
Figure 3.7. Existing and Authorized Rights of Way 3-22
Figure 3.8. Transportation System 3-25
Figure 3.9. Roads and Rates Proposed for Construction and Licensed Motorized Vehicle Designation 3-26
Figure 3.10. Vegetation Communities in Sloan Canyon NCA 3-28
Figure 3.11. Potential Habitat for Special Status Plant Species 3-31
Figure 3.12. Potential Habitat for Noxious and Invasive Weeds 3-33

Figure 3.13. Potential Habitat for Desert Tortoise 3-46
Figure 3.14. Potential Habitat for Gila Monster 3-48
Figure 3.15. Potential Habitat for Chuckwalla 3-49
Figure 3.16. Potential Bighorn Sheep Habitat 3-51
Figure 3.17. Potential Habitat for Phainopepla 3-53
Figure 3.18. Potential Habitat for Raptors (Nesting and Fledging) 3-54
Figure 3.19. Water Resources 3-57
Figure 3.20. Air Quality Non-Attainment Area 3-59
Figure 3.21. Hidden Valley Allotment 3-63
Figure 3.22. NRCS Soil Types Sloan Canyon NCA 3-66
Figure 3.23. Existing Locatable Minerals Mining Claims 3-69
Figure 3.24. Identified Abandoned Mines 3-71
Figure 3.25. Personal Income Trends 1990-2001 (2000$) 3-74
Figure 3.26. Clark County Employment Trends by Industry, 1990-2000, SIC data 3-75
Figure 3.27. Clark County Employment by Industry, 2002, NAICS Data 3-76
Figure 3.28. Population Ethnicity for Clark County and State of Nevada 3-79

LIST OF TABLES

Table 2.1. Recreation Management—No Action Alternative 2-23
Table 2.2. Sloan Canyon Petroglyph Site Management Actions—No Action Alternative 2-28
Table 2.3. Recreation Management—Alternative B 2-38
Table 2.4. Sloan Canyon Petroglyph Site Management Actions—Alternative B 2-42
Table 2.5. Recreation Management Actions—Alternative C 2-57
Table 2.6. Sloan Canyon Petroglyph Site Management Actions—Alternative C 2-66
Table 2.7. Recreation Management Actions—Alternative D 2-83
Table 2.8. Sloan Canyon Petroglyph Site Management Actions—Alternative D 2-94

Table 3.1. North McCullough Wilderness Area Disturbances 3-11
Table 3.2. Archaeological Prehistoric Sensitivity Classes 3-15
Table 3.3. Existing Landscape Modifications 3-18
Table 3.4. Visual Resource Management Classes and Objectives 3-19
Table 3.5. Flora Potentially Occurring in Sloan Canyon NCA 3-30
Table 3.6. Fauna Special Status Species Potentially Occurring in Sloan Canyon NCA 3-38
Table 3.7. National Ambient Air Quality Standards 3-60
Table 3.8. Livestock Grazing on the Hidden Valley Allotment 1990–2002 3-64
Table 3.9. Soil Types Within Sloan Canyon NCA 3-67
Table 3.10. Status of Abandoned Mine Sites Located Within the NCA 3-70
Table 3.11. Population Density of Clark County, Nevada 3-72
Table 3.12. Population Centers Within Clark County, Nevada 3-73
Table 3.13. Median Household Money Income, 1999 3-79
Table 3.14. Percentage of Persons Below Poverty, 1999 3-80

Table 4.1 Impacts from the North McCullough Road Northern and Southern Corridors 4-4

Table 5.1. Public Scoping and Tribal Information Meetings 5-3
Table 5.2. Summary of Consultation Activities 5-7
Table 5.3. Bureau of Land Management Preparers and Reviewers 5-8
Table 5.4. Booz Allen Hamilton Team Preparers and Reviewers 5-10
Table 5.5. Cooperating Agencies' Representatives 5-12

EXECUTIVE SUMMARY

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INTRODUCTION

The Bureau of Land Management (BLM) has prepared this Draft Resource Management Plan and Environmental Impact Statement (RMP/EIS) to provide guidance in managing public lands in the Sloan Canyon National Conservation Area (NCA) and to analyze the environmental impacts resulting from implementing the management alternatives and actions addressed in this document. Following public review and comments of this Draft RMP/EIS, BLM will publish a Proposed RMP and Final EIS. It will be followed by a record of decision that identifies any changes resulting from public comment on the draft and the final alternative components selected as the RMP.

The cities of Las Vegas and Henderson, in Clark County, Nevada, form one of the fastest growing metropolitan areas in the United States. In November 2002, with the support of local governments, Congress designated the Sloan Canyon NCA and the North McCullough Wilderness Area to preserve and protect a portion of southern Nevada's Mojave Desert as a permanent asset for future generations. The 48,438-acre NCA forms the mountainous southern skyline of the City of Henderson and Las Vegas and contains important cultural resources and archaeological sites. The centerpiece of the NCA is the Sloan Canyon Petroglyph Site, one of the most significant cultural resources in southern Nevada. More than 300 rock art panels with nearly 1,700 designs represent native cultures dating from the Archaic to historic era. Although residential housing, schools, parks, and businesses will eventually border much of the northern and western edges of the NCA, at the conservation area is undeveloped and rarely used. There are few roads and no visitor facilities, there is no single entrance, and most visitors never come into contact with BLM staff. However, because use of the NCA will likely change dramatically in coming years, the BLM is challenged to develop management guidance that will be responsive to visitor needs and protective of the NCA's valuable resources.

This Draft RMP/EIS was prepared using BLM's planning regulations and guidance issued under the authority of the Federal Land Policy and Management Act of 1976. The EIS is incorporated as part of this document to assess the environmental consequences associated with various alternative management scenarios. The EIS is also included to meet the requirements of the National Environmental Policy Act of 1969 (NEPA), Council on Environmental Quality regulations for implementing NEPA (40 *Code of Federal Regulations* (CFR) 1500–1508), and requirements of the BLM's NEPA Handbook 1790-1.

PURPOSE AND NEED FOR THE SLOAN CANYON RMP

Title VI of the Clark County Conservation of Public Land and Natural Resources Act of 2002, hereafter referred to as the Sloan Canyon NCA Act, directs BLM to manage the NCA in a manner that conserves, protects, and enhances the Conservation Area's resources for the benefit and enjoyment of present and future generations. The Sloan Canyon NCA Act identifies cultural, archaeological, natural, wilderness, scientific, geological, historical, biological, wildlife, educational, and scenic resources as important reasons for the

establishment of the NCA. The designation of the North McCullough Wilderness Area, administered under the Wilderness Act of 1964 and the Clark County Act, Title II ("Wilderness Areas"), requires that approximately 14,763 acres within the NCA are preserved and protected in their natural, primitive condition.

The purpose of this RMP is to provide BLM guidance for managing the NCA consistent with the spirit and intent of the Sloan Canyon NCA Act and other existing statutes, regulations, and policy, including the FLPMA. This planning effort is comprehensive in nature and addresses NCA issues identified through agency, interagency, and public scoping efforts. The planning effort also identifies the NCA's vision, long-range management goals, objectives, and actions and options to meet those objectives.

VISION STATEMENT

The BLM developed the following vision for managing the NCA through discussions with cooperating agencies, from input received during the public scoping process, and from the direction, intent, and spirit of the Sloan Canyon NCA Act.

The BLM will manage the Sloan Canyon NCA to preserve, protect, and enhance the area's cultural features and natural resources and wilderness values for the benefit and enjoyment of present and future generations by—

- Protecting the Sloan Canyon Petroglyph Site and respecting the canyon for its importance to Native Americans
- Providing education on the importance of preserving and protecting the area's cultural, natural, and wilderness values
- Providing information and education on Sloan Canyon NCA's resources in a creative manner
- Providing recreational opportunities that are compatible with and protect the various elements of the natural landscape.

PLANNING PROCESS AND PUBLIC INVOLVEMENT

The BLM land use planning process is guided by laws, regulations, and policies that require the agency to seek public involvement at key points in the development and analysis of management options. In addition, the Sloan Canyon NCA Act requires BLM to coordinate with local governments and involve interested members of the public when developing this management plan. The Notice of Intent, published in the *Federal Register* on September 15, 2003, formally announced the beginning of the Sloan Canyon NCA planning process. The notice encouraged the public and interested State, local, and Tribal governments to participate in determining issues to be addressed through the management alternatives and analyzed in the EIS. In addition, information regarding the planning process was distributed through legal notices in newspapers, media releases issued to local television and radio stations, and informal flyers posted in community areas.

Scoping for this RMP/EIS involved asking the public, interested tribes, and other agencies for general approaches and specific ideas about how the NCA and its resources might be managed. BLM conducted four public scoping meetings, co-hosted by the City of Henderson, City of Boulder City, and Clark County; three tribal information meetings; and numerous meetings with tribes, local governments, and other cooperating agencies (e.g., Nevada Department of Wildlife). The comments received from these meetings, by mail, and from the project's Web site provided many well-considered ideas, as well as identified related issues, concerns, and potential impacts. These contributions formed a foundation for developing management approaches analyzed in this RMP. A majority of the 512 comments received addressed recreation, access and transportation, and cultural resources, with widespread agreement that the Sloan Canyon Petroglyph Site should be protected from the impact of visitation, vandalism, and theft. Comments pertaining to recreation uses ranged from hiking trails and mountain biking to off-highway vehicle (OHV) use and recreational target shooting. Access and transportation suggestions ranged from constructing no new roads to identifying new road locations and access points.

Shortly after the scoping period, a Management Situation Analysis (MSA) was conducted and a report was published providing baseline information, existing resource conditions, current management situation of resources, and opportunities for resource management. In addition to the MSA, planning criteria were developed to guide the plan development and ensure that issues were identified and unnecessary data collection was avoided. In March 2004, BLM hosted a Community Information Meeting to provide cooperating agencies, local organizations, and interested members of the public an update on the RMP planning process.

MANAGEMENT ALTERNATIVES

The goal of alternatives development was to construct a range of management actions to balance the predicted rapid increase in use of the NCA with protection of its outstanding characteristics, such as its primitive nature and cultural resources. Based on public input and guidance from the enabling legislation, BLM and cooperating agency resource experts, working as a team, developed four alternative management approaches and analyzed them for potential environmental impacts. With the exception of some recommendations that were outside the scope of the Sloan Canyon NCA Act or the Clark County Act, Title II ("Wilderness Areas"), or that could not be enacted for other statutory or regulatory reasons, participants in the planning process should find their comments and recommendations included in one or more of the management actions. A summary of each alternative's objectives is provided below, and a matrix comparing key points and differences of each alternative follows the Executive Summary.

The alternatives in this Draft RMP/EIS contain actions related to general "land use planning" decisions and "implementing" decisions. The land use planning decisions establish goals and objectives for managing the NCA's resources as well as associated actions and uses. The implementing decisions constitute BLM's final approval for on-the-ground actions to proceed.

Alternative A: No Action

The No Action Alternative, which is a continuation of the current management situation, is based on available data, existing planning decisions and policies, and existing land use allocations and programs. The *Las Vegas Resource Management Plan* provides the overarching guidance for managing BLM lands in southern Nevada, whereas the Sloan Canyon NCA Act and Clark County Act, Title II ("Wilderness Areas"), offer specific direction for managing the NCA and Wilderness. Any future revisions to the existing management practices would be made solely for ensuring compliance with any changes in mandates such as laws, regulations, or the listing of new threatened and endangered species.

Alternative B: Emphasize Natural Character

Alternative B emphasizes the natural character of the NCA, and represents, in general, the most "hands-off" management approach while being the most resource protective. Developed recreation, such as designated hiking trails, would be minimized, and opportunities for solitude and wilderness-type experiences would be maximized. Visits to the Sloan Canyon Petroglyph Site would be permitted only by guided tour. In addition, all existing roads and trails would be closed to the public for motorized use.

Alternative C: Moderate Developed Use

This alternative focuses on a moderate increase in development while maintaining the natural characteristics of the NCA. Recreational opportunities such as mountain biking, equestrian use, and dispersed camping would be provided, and users would be required to remain on designated trails in certain areas. The Sloan Canyon Petroglyph Site would be accessed mainly from a multipurpose visitor center at the north end of Sloan Canyon, and guided tours would be required during high use times. Most existing roads and trails in the NCA would be closed to the public for motorized use.

Alternative D: Emphasize Developed Uses

Alternative D takes a more active management approach, allowing maximum use while maintaining and enhancing the condition of the NCA's resources. This alternative emphasizes developed uses of the NCA and includes the greater opportunity for recreational diversity. OHV use would be authorized on designated trails and opportunities for hiking, mountain biking, equestrian use, and camping would be maximized. The Sloan Canyon Petroglyph Site could be accessed from a multipurpose visitor center at the north end of Sloan Canyon or from a visitor contact station at the Hidden Valley Trailhead on a self-guided basis. A system of existing roads and routes would be open to the public for motorized use.

The Preferred Alternative

The preferred alternative, which attempts to balance future visitor needs with resource protection, was selected after evaluating input from the public, cooperating agencies, and internal resource specialists.

Alternative C is preferred for all resources because it provides for moderate levels of developed recreation, facilities, and transportation while ensuring that neither resources nor visitor experiences are unacceptably degraded.

The Sloan Canyon NCA Act directed BLM to grant the City of Henderson a Right-of-Way (ROW) for the North McCullough Road (N-65874), which is envisioned to be a scenic roadway constructed to provide access to the NCA, trailheads, and overlook points. The Act requires BLM to recommend a location for the North McCullough Road as part of this planning process. Based on ground surveys, field visits, impact assessments, and extensive dialogue with City of Henderson planners and engineers, BLM recommends the proposed Northern Corridor as the location for North McCullough Road.

Environmental Consequences

The management alternatives were configured to maximize benefits and minimize major impacts of resources and management actions on the natural and human environment. None of the alternatives have the potential to result in significant adverse impacts or cause irretrievable damage to the NCA. Taking no action would restrict and potentially prohibit the BLM from implementing management measures necessary for not only protecting the resource but also meeting the demands of increased recreation. Alternative B would be most resource protective, but it would place strict limitations on visitor use, such as requiring everyone to join a guided tour to see the Sloan Canyon Petroglyph Site. Constructing and operating a multipurpose visitor center at the north end of Sloan Canyon in alternatives C and D would change use patterns and consolidate visitation in that area. Focusing on developed recreation in Alternative D, such as OHV use and dedicated mountain bike trails, could alter the primitive and natural character in some portions of the NCA. Chapter 4 describes impacts under all four alternatives by resource areas and actions.

Agency Consultation and Coordination

As discussed above, the BLM implemented an extensive public participation process that included formal public scoping meetings to solicit and address public input. In addition, BLM staff briefed many special interest groups such as The Friends of Sloan, the Sierra Club, and the BLM's Mojave-Southern Great Basin Resource Advisory Council on the status of the NCA.

In November 2003, BLM began consultations with the U.S. Fish and Wildlife Service to comply with Section 7(c) of the Endangered Species Act of 1973 and to ensure that proposed RMP actions do not compromise the existence of listed species nor destroy or adversely modify critical habitat within the NCA (50 CFR 400).

During the earliest planning stages, invitations were extended to the State of Nevada, Clark County, other agencies, and federal and local governments to participate as cooperating agencies in the RMP development. The following committed to participate as cooperating agencies: Nevada Department of Wildlife; Nevada State Historic Preservation Office; Clark County; City of Henderson; City of Boulder City; Las Vegas Paiute

Tribe; Paiute Indian Tribe of Utah; and Fort Mojave Indian Tribe. Initially, cooperating agencies were given a field tour of the NCA; were asked by the BLM to provide existing data and other relevant information; and were encouraged to work with the BLM interdisciplinary team to develop and assess alternatives and impacts. Many cooperating agencies became integral members of the interdisciplinary team for the RMP and attended extensive meetings to share their expertise. The City of Henderson, which shares a border with the north half of the NCA, not only made expert contributions but also is taking into account the NCA and its resources in its own planning of streets, libraries, and other infrastructure in the rapidly developing lands bordering the NCA.

The NCA is known to contain a site of major interest to Native American Tribes—the Sloan Canyon Petroglyph Site. Consultation with area tribes occurred and continues to occur on several levels. These consultations range from government-to-government, such as inviting interested tribes to become cooperating agencies at the level of involvement of their choice, to public information meetings held at tribal locations, and finally to an intensive ethnographic study undertaken with the cooperation of tribal officials and individual members to identify and evaluate the cultural resources of the NCA. BLM is committed to long-term consultation and cooperation with the tribes regarding the management of cultural aspects of the NCA, and a Native American Coordinator, assigned to the NCA permanent staff, is carrying forward the relationships developed during this planning process.

Table ES-1. SUMMARY OF ALTERNATIVES

	NO ACTION	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
Alternative Themes	No Action.	Emphasize Natural Character.	Allow Moderate Developed Use While Maintaining Natural Character.	Emphasize Developed Uses.
Alternative Objectives	Manage in accordance with existing guidance, laws, plans, and policies that comply the Sloan Canyon NCA Act and Clark County Act, Title II ("Wilderness Area").	Comply with the acts. Emphasize primitive visitor experience while protecting and preserving NCA resources. Allow least developed use.	Comply with the acts. Provide a greater diversity of uses, developed facilities, and fewer restrictions outside the Wilderness.	Comply with the acts. Emphasize developed use, including human activities and recreational opportunities.
RECREATION OPPORTUNITY SPECTRUM/MANAGEMENT EMPHASIS AREAS				
Recreation Opportunity Spectrum/ Management Emphasis Areas (L)	Manage according to ROS classes designated in the *Las Vegas RMP*. Zone Wilderness as Primitive to meet the intent of the Sloan Canyon NCA Act; Clark County, Title II ("Wilderness Area") (Figure 2.2).	Manage according to designated MEAs (Section 2.3 and Figure 2.9).	Same as Alternative B, except MEA zones vary (Section 2.3 and Figure 2.17).	Same as Alternative B, except MEA zones vary (Section 2.3 and Figure 2.27).
RECREATION				
Hiking (I)	Allowed throughout the NCA	Allow cross-country hiking in the NCA, except in the Sloan Canyon Petroglyph Site and its northern access, where they must stay in the wash; no hiking trails designated (Figure 2.10).	Trail use required in designated areas; cross-country hiking allowed in remainder of NCA (Figure 2.18).	Same as Alternative C, except designated areas vary (Figure 2.28).

Note: (L) denotes land use planning decisions and (I) denotes implementing decisions.

TABLE ES-1: SUMMARY OF ALTERNATIVES

	NO ACTION	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
Equestrian Use (I)	Allowed throughout the NCA.	Prohibited throughout the NCA, except on the City of Henderson's North McCullough Trail. Require certified weed-free feed and hay.	Trail use required in designated areas; cross-country use allowed in other areas; use prohibited in remainder of NCA (Figure 2.19). Same as Alternative B.	Same as Alternative C, except designated areas vary (Figure 2.29). Same as Alternative B.
Mountain Biking (I)	Allowed throughout the NCA, except the Wilderness.	Prohibited throughout the NCA, except on the City of Henderson's North McCullough and Anthem Trails.	Allowed in designated areas on designated roads and trails (Figure 2.20).	Same as Alternative C, except designated areas, roads, and routes vary. Dedicated mountain bike trails developed (Figure 2.30).
Trails (I)	Designate, design, construct, and maintain trails on an as-needed, case-by-case basis. Analyze development in sensitive natural or cultural resource areas through site-specific National Environmental Policy Act (NEPA) analysis. Appropriately manage trail development near wildlife	Designate no trails in the NCA other than the City of Henderson's North McCullough and Anthem trails.	Develop a multiple use trail system in designated areas. Provide facilities to access recreational destinations and provide loop-trail opportunities. Avoid development in sensitive natural or cultural resource areas, where possible. Consider site-specific resource conditions when selecting and designing trails, and adding new trails. Same as No Action.	Develop a trail system to optimize uses. Include widest range of trails and facility experiences (primitive to highly developed). Emphasize recreational experience. Same as Alternative C. Same as Alternative C. Same as No Action.

Note: (L) denotes land use planning decisions and (I) denotes implementing decisions.

Table ES-1. SUMMARY OF ALTERNATIVES

	NO ACTION	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
	water developments.			
			Evaluate trails outside Wilderness for development with consideration to the Americans with Disabilities Act of 1990.	Same as Alternative C.
	Expand trial system as needed.		Add new trails if visitor experience would improve without substantial impact to sensitive natural or cultural resource.	Add new trails if visitor experience would improve without irreparable impact to sensitive natural or cultural resource.
	Restore unauthorized trails to natural conditions upon discovery.	Same as No Action.	Same as No Action.	Evaluate unauthorized trails and consider whether to close and restore or adopt into the trail system.
OHV (L)	Per Sloan Canyon NCA Act, there is no OHV use in the NCA because no roads and routes have been designated (Figure 2.3).	Prohibited throughout the NCA.	Same as Alternative B.	Allowed on designated routes (Figure 2.31).
Dogs (I)	Allowed, off leash, throughout the NCA unless unacceptable resource degradation occurs.	Prohibit dogs throughout the NCA.	Allowed, on leash, throughout NCA, except in the Sloan Canyon Petroglyph Site and its northern access, and designated sensitive resource areas. In "trail-only" areas, dogs must be on the trails.	Allowed, off leash, throughout NCA, except in the Sloan Canyon Petroglyph Site and its northern access, and designated sensitive resource areas.

Note: (L) denotes land use planning decisions and (I) denotes implementing decisions.

TABLE ES-1: SUMMARY OF ALTERNATIVES

	NO ACTION	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
			Dog feces must be immediately picked up and packed out.	Same as Alternative C.
Nighttime Use (I)	Allow camping and associated fires throughout NCA except areas closed to camping per the *Las Vegas RMP* (Figure 2.4).	Prohibit camping, campfires, and after-hours use throughout the NCA.	Allow primitive, dispersed camping in designated areas of the NCA (Figure 2.21). Allow campfires at camping sites in fire pans or with fire blankets. Fire waste products must be packed out of the NCA.	Same as Alternative C, except designated areas vary (Figure 2.32). Develop a dry, primitive campground near the Hidden Valley Trailhead. Outside the Wilderness, allow campfires at camping sites, in BLM-authorized fire rings. In the Wilderness, same as Alternative C.
Rock Climbing (I)	Allow throughout the NCA unless unacceptable resource degradation occurs.	Prohibit throughout the NCA.	Allow bouldering and traditional rock climbing (no permanent anchors) throughout the NCA including the Wilderness, except in the Sloan Canyon Petroglyph Site and its northern access, and in designated sensitive resource areas.	Allow permanent anchors throughout NCA including the Wilderness, except in the Sloan Canyon Petroglyph Site and its northern access, and in designated sensitive resource areas. No power drills allowed in the Wilderness.
Rockhounding (L)	Allow throughout the NCA unless unacceptable resource degradation occurs.	Prohibit throughout the NCA.	Allowed throughout NCA except in the Sloan Canyon Petroglyph Site and its northern access with use authorization.	Allow throughout NCA, except in the Sloan Canyon Petroglyph Site and its northern access.

Note: (L) denotes land use planning decisions and (I) denotes implementing decisions.

Table ES-1. SUMMARY OF ALTERNATIVES

	NO ACTION	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
Geocaching (I)	Allow throughout the NCA unless unacceptable resource degradation occurs.	Prohibit throughout the NCA.	Same as Alternative B.	Same as Alternative B.
Recreational Target Shooting (I)	Allow throughout NCA except areas closed to shooting per the *Las Vegas RMP* (Figure 2.4).	Prohibited throughout the NCA.	Same as Alternative B.	Same as Alternative B.
Special Recreation Permits (SRPs) (L)	Issue SRPs in the NCA, issue no competitive or vending SRPs the Wilderness. Require organized groups to obtain a SRP on a case-by-case basis.	Issue no competitive or vending SRPs within the NCA or Wilderness. Require organized groups to obtain a SRP on a case-by-case basis for group activities outside the Sloan Canyon Petroglyph Site.	Same as No Action. Same as Alternative B.	Same as No Action. Same as Alternative B.
NORTH MCCULLOUGH WILDERNESS AREA				
Wilderness Visitation (I)	Monitor and manage to maintain wilderness characteristics (e.g., solitude and naturalness).	Monitor and manage to maintain wilderness characteristics (e.g., solitude and naturalness) at or below a threshold established through a system such as limit of acceptable change process. Establish separate threshold for the Sloan Canyon Petroglyph Site. Limit visitation to a number that does not cause impacts to wilderness characteristics (e.g.,	Same as Alternative B. Same as Alternative B. Same as Alternative B.	Same as Alternative B. Same as Alternative B. Same as Alternative B.

Note: (L) denotes land use planning decisions and (I) denotes implementing decisions.

TABLE ES-1: SUMMARY OF ALTERNATIVES

	NO ACTION	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
		social trails and crowding). Establish appropriate visitation thresholds based on monitoring of impacts to wilderness characteristics.	Same as Alternative B.	Same as Alternative B.
Sloan Canyon Petroglyph Site **Visitor Use Restrictions (I)**	Allow self-guided tours without restrictions on visitation numbers, group size, or access.	Allow visitation to the Sloan Canyon Petroglyph Site only with a guided tour. Allow no more than one guided group, consisting of no more than 12 people, at the petroglyph site at one time. For organized groups with prior reservations, guided tours would be arranged for groups of 6 to 20 people to visit the Sloan Canyon Petroglyph Site.	During high-use times, allow visitation to the Sloan Canyon Petroglyph Site only with a guided tour. During periods of lower use, allow unaccompanied visitation to the Sloan Canyon Petroglyph Site if permit is obtained. During periods of high use, allow no more than one guided group, consisting of no more than 20 people, at the petroglyph site at one time. For organized groups with prior reservations, guided tours would be arranged for groups of 10 to 35 people to visit the Sloan Canyon Petroglyph Site.	Same as No Action Alternative. Establish no limitation on group sizes or numbers unless needed to prevent impacts to wilderness characteristics or canyon resources. Same as Alternative C.
Sloan Canyon Petroglyph Site **Self-Guided Tours (I)**	No similar action.	Prohibit unaccompanied visits.	Issue self-guided tour permits from the visitor center, from a roving ranger, or at the Hidden Valley Trailhead.	No permits required.

Note: (L) denotes land use planning decisions and (I) denotes implementing decisions.

Table ES-1. SUMMARY OF ALTERNATIVES

	NO ACTION	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
			Issue no more than 25 permits per hour. Require all nonguided visitors to experience an interpretive presentation on appropriate visitor use and site etiquette at cultural resources sites.	Same as Alternative C.
Sloan Canyon Petroglyph Site **Operational Hours (I)**	No similar action.	Allow access to petroglyph site during visitor contact station operating hours (to be determined).	Allow access to petroglyph site during visitor center operating hours (to be determined).	Allow access to petroglyph site during visitor center and visitor contact station operating hours (to be determined).
Sloan Canyon Petroglyph Site **Access Control/Patrols (I)**	Patrol to protect natural and cultural resources and to ensure compliance with the Sloan Canyon NCA Act.	Control northern access to the Sloan Canyon Petroglyph Site from the visitor contact station and ongoing patrols. Monitor resource conditions and visitor use of the canyon with roving rangers.	Control northern access to the Sloan Canyon Petroglyph Site from the visitor's center and ongoing patrols. Allow access to the petroglyph site from Hidden Valley by permit only. Same as Alternative B, plus rangers would issue self-guided tour permits.	Same as Alternative C. Control southern access to the Sloan Canyon Petorglyph Site from Hidden Valley contact station. Same as Alternative B.
Sloan Canyon Petroglyph Site **Trails (L)**	Manage to comply with the Sloan Canyon NCA Act and Clark County Act, Title II ("Wilderness Area").	Designate the Sloan Canyon wash as the access from the contact station to the petroglyph site.	Designate both the Sloan Canyon wash and the constructed rockfall bypass trail as the access options from the visitor center to the petroglyph site.	Same as Alternative C, except place ladder or rock stairway in wash at rockfall.

Note: (L) denotes land use planning decisions and (I) denotes implementing decisions.

TABLE ES-1: SUMMARY OF ALTERNATIVES

	NO ACTION	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
		Use limited to the canyon floor.	Use limited to the canyon floor. Designate and construct a trail from the Hidden Valley Trailhead to the petroglyph site (Figure 2.22).	
Sloan Canyon Petroglyph Site **Signage (I)**	No similar action.	Prohibit within the Sloan Canyon Petroglyph Site access areas. Place signs indicating that access to the Sloan Canyon Petroglyph Site is allowed by guided tour only beyond this point. Place signs at various points, including the south end of the Sloan Canyon Petroglyph Site.	Allow limited amounts of signage and interpretive media within the Sloan Canyon Petroglyph Site and access areas for resource protection. Place signs indicating that access to the Sloan Canyon Petroglyph Site is restricted to permitted access or guided tours only beyond this point. Place signs at various points, including the south end of the Sloan Canyon Petroglyph Site.	Allow signage and interpretive media within the Sloan Canyon Petroglyph Site and access areas for educational purposes and to protect wilderness values. No similar action.
Wilderness Recreation **Hiking/** **Equestrian Use (I)**	No similar action.	Allow cross-country hiking in the Wilderness, except in the Sloan Canyon Petroglyph Site and its northern access. Prohibit equestrian use in the Wilderness.	Designated trail use required to access the Sloan Canyon Petroglyph Site; cross-country hiking allowed in remainder of Wilderness. Equestrian use prohibited in the Sloan Canyon Petroglyph Site; allow cross-country equestrian use in the remainder of the Wilderness.	Same as Alternative C. Same as Alternative C, except trail use required for equestrian use in designated areas in the NCA and Wilderness.

Note: (L) denotes land use planning decisions and (I) denotes implementing decisions.

Table ES-1. SUMMARY OF ALTERNATIVES

	NO ACTION	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
			Certified weed-free horse feed and hay would be required to prevent the spread of noxious and invasive weeds.	Same as Alternative C.
Wilderness Recreation **Trails (L)**	Manage trail use as appropriate and designate trails on a case-by-case basis.	Prohibit designation and construction of hiking and equestrian trails.	Designate, design, construct, and maintain trails for resource protection.	Same as Alternative C, except consider resource protection and opportunities for primitive recreation.
	Design construct and maintain trails as appropriate.			
	Manage social trail proliferation as appropriate.	Manage recreation use that results in social trails by closing areas, installing barriers and providing visitor information.	Same as Alternative B.	Same as Alternative B.
		Block new social trails using natural materials with the minimum requirement/minimum tool analysis.	Same as Alternative B plus install wilderness appropriate "closed" signs.	Same as Alternative C.
		Restore visible portions of new social trails using non-mechanized means and native vegetation. Restore non-visible portions naturally.	Restore new social trails after completing an minimum requirement/minimum tool analysis.	Same as Alternative C.
	Manage trail development near wildlife water developments as appropriate.		Prohibit construction of trails within ¼ mile of wildlife developments.	Same as Alternative C.

Note: (L) denotes land use planning decisions and (I) denotes implementing decisions.

TABLE ES-1: SUMMARY OF ALTERNATIVES

	NO ACTION	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
Wilderness Recreation **Dogs (I)**	Allowed, off leash, throughout Wilderness unless unacceptable resource degradation occurs.	Prohibit dogs throughout Wilderness.	Allowed, on leash, throughout Wilderness except in the Sloan Canyon Petroglyph Site and its northern access, and designated sensitive resource areas. Dog feces must be immediately picked up and packed out.	Allowed, off leash, throughout Wilderness except in the Sloan Canyon Petroglyph Site and its northern access and designated sensitive resource areas. Same as Alternative C.
Wilderness Recreation **Nighttime Use (I)**	Allow camping, associated campfires throughout the Wilderness except area closed to camping per the Las Vegas RMP (Figure 2.4).	Prohibit camping, campfires, and after-hours use throughout the Wilderness.	Allow primitive, dispersed camping and associated campfires throughout the Wilderness, except in the Sloan Canyon Petroglyph Site. Allow campfires at camping sites, using fire pans or fire blankets. Fire waste products must be packed out.	Same as Alternative C.
Wilderness Recreation **Other Recreation Use (I)**	Allow geocaching throughout Wilderness unless unacceptable resource degradation occurs. Allow rockclimbing with permanent anchors (but no power drills).	Prohibit geocaching in the Wilderness. Prohibit rock climbing in the Wilderness.	Same as Alternative B. Prohibit rock climbing in the Sloan Canyon Petroglyph Site and its northern access. Allow bouldering and traditional rock climbing (no permanent anchors) in the remainder of the Wilderness.	Same as Alternative B. Same as Alternative C. Allow bouldering and traditional rock climbing using low profile, natural colored fixed anchors (no power drills) in the remainder of the

Note: (L) denotes land use planning decisions and (I) denotes implementing decisions.

Table ES-1. SUMMARY OF ALTERNATIVES

	NO ACTION	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
				Wilderness.
Wilderness **Signage and Improvements (I)**	Install wilderness boundary signs, trailhead access signs, visitor registers, and permanent improvements, as appropriate.	Install wilderness boundary signs at all known and potential Wilderness access routes and visitor use areas.	Same as Alternative B, except install signs at "line of sight" distances along the entire wilderness boundary. Install low profile, natural color trailhead signs outside wilderness boundary at major access routes. Include route information, maps, and visitor information.	Same as Alternative C, except install signs and kiosks.
		Install low profile and natural color Wilderness visitor registers outside the Wilderness boundary on high-use access routes.	Same as Alternative B.	Same as Alternative B.
	Allow permanent improvements in Wilderness, as appropriate.	Prohibit permanent improvements in Wilderness.	Allow minimal permanent improvements in Wilderness only for the purpose of resource protection and enhancement of wilderness values.	Allow minimal permanent improvements in Wilderness only for the purpose of resource protection, human health and safety, and enhancement of wilderness values.
Wilderness Soundscape (I)	No similar action.	Maintained at or below ambient noise thresholds established through acoustical monitoring.	Same as Alternative B.	Same as Alternative B.
Wilderness Disturbance Restoration (I)	Maintain naturalness.	Restore human-caused disturbances or alterations using only non-mechanized	Same as Alternative B, except complete a minimum requirement/minimum tool	Same as Alternative C.

Note: (L) denotes land use planning decisions and (I) denotes implementing decisions.

TABLE ES-1: SUMMARY OF ALTERNATIVES

	NO ACTION	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
		hand tools without altering natural vegetation composition. Complete restoration during low visitation periods.	analysis.	
Wilderness Disturbance Restoration (I) (continued)	Manage vandalism and illegal dumping as appropriate. Noxious and invasive weeds would be managed as appropriate on a case-by-case basis.	Remove or repair vandalism and illegal dumping in the Sloan Canyon Petroglyph Site using only non-mechanized hand tools. In the remainder of the Wilderness, consider using non-mechanical means. Manage noxious and invasive weeds in accordance with the Partners Against Weeds – An Action Plan for the BLM initiative for weeds.	Remove or repair vandalism and illegal dumping in the Wilderness using only non-mechanized hand tools. Same as Alternative B.	Remove or repair vandalism and illegal dumping in the Wilderness after completing an minimum requirement/ minimum tool analysis. Same as Alternative B.
CULTURAL RESOURCES				
Sloan Canyon Petroglyph National Register Site (L)	Manage under section 106 and appropriate guidance when threatened by land disturbing activities within limits prescribed by comply the Sloan Canyon NCA Act and Clark County Act, Title II ("Wilderness Area"). Implement the *Las Vegas RMP*, managing cultural resources within the Sloan	Assigned to traditional, conservation for future use, and public use categories within the limits prescribed by the Clark County Act and Clark County Act, Title II ("Wilderness Area"). Minimize changes to natural condition of the site.	Assign to traditional, conservation for future, public, and scientific use categories with scientific use restricted to activities that would have no effect upon the site's eligibility to the NRHP. Management actions must be within limits prescribed by the Sloan Canyon NCA Act and	Same as Alternative C.

Note: (L) denotes land use planning decisions and (I) denotes implementing decisions.

Table ES-1. SUMMARY OF ALTERNATIVES

	NO ACTION	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
	Canyon Petroglyph NRHP site for conservation of their overriding scientific or historic importance.		Clark County Act, Title II ("Wilderness Area").	
Rockshelters (L)	Manage under Section 106 and appropriate guidance when threatened by land disturbing activities. Implement the *Las Vegas RMP* managing rockshelters that have or are likely to receive intensive recreational use for public use. Monitor and protect these sites as appropriate. Manage rockshelters in the remainder of the NCA for conservation use.	Assign the majority of known rockshelters to conservation for future use and traditional use management categories. Assign the remainder of the rockshelters to scientific, public, and traditional use categories.	Assign approximately half of the known rockshelters to conservation for future use and traditional use management categories. Assign the remainder of the rockshelters to scientific, public, and traditional use categories.	Assign the majority of known rockshelters to scientific and traditional use management categories. Assign the remainder of the rockshelters to conservation for future use and traditional use categories.
Rock Art (Other Than Sloan Canyon Petroglyph Site) (L)	Manage under Section 106 and appropriate guidance when threatened by land disturbing activities. Implement the *Las Vegas RMP*, managing rock art locales that have or are likely to receive intensive recreational use for public use. Monitor and protect from disturbance and	Assign the majority of rock art sites to conservation for future use and traditional use management categories. Assign the remainder of the rock art sites to conservation for future, scientific, and traditional use categories.	Assign approximately half the rock art sites to conservation for future use and traditional use management categories. Assign the remainder of the rock art sites to conservation for future, scientific, and traditional use categories.	Assign the majority of rock art sites to traditional and public use management categories. Assign the remainder of the rock art sites to conservation for future, scientific, and traditional use categories.

Note: (L) denotes land use planning decisions and (I) denotes implementing decisions.

TABLE ES-1: SUMMARY OF ALTERNATIVES

	NO ACTION	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
	damage as appropriate. Manage rock art locale in the remainder of the NCA for conservation use.			
All Other Prehistoric and Historic Sites (L)	Manage under Section 106 and appropriate guidance when threatened by land disturbing activities. Implement the *Las Vegas RMP,* managing roasting pits, camp/open lithic scatters, rock features, and historic trash scatters for scientific use. Manage representative samples of each site type for conservation use. Manage prehistoric and historic remains, mining sites, and historic road/trail sites in areas that have or are likely to receive intensive recreational use for public use. Monitor and protect these sites as appropriate. Manage the remainder of these sites within the NCA for conservation use.	Assign approximately half of the known other prehistoric and historic sites to conservation for future use and traditional use. Assign the remainder of these sites to scientific, public, and traditional use management categories.	Same as Alternative B.	Assign the majority of the known other prehistoric and historic sites to scientific and traditional use management categories. Assign the remainder of these sites to conservation for future use and traditional use categories.
Ineligible Sites and Isolates (L)	Not treated under the *Las Vegas RMP* or Section 106.	Assign to scientific and experimental use management	Same as Alternative B.	Same as Alternative B.

Note: (L) denotes land use planning decisions and (I) denotes implementing decisions.

Table ES-1. SUMMARY OF ALTERNATIVES

	NO ACTION	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
		categories. Do not require mitigation beyond recordation for land disturbing activities, since not covered under Section 106.		
High Density Site Area (L)	Manage under Section 106 and appropriate guidance when threatened by land disturbing activities.	Require Class III inventory prior to any land disturbing undertaking. Require mitigation measures appropriate to the resource, degree of threat, and redundancy of information. Utilize maximum fire suppression with cultural resource advisor.	Same as Alternative B.	Same as Alternative B.
Medium Density Site Area (L)	Manage under Section 106 and appropriate guidance when threatened by land disturbing activities.	Require Class III inventory prior to any land disturbing undertaking. Require mitigation measures appropriate to the resource, degree of threat, and redundancy of information. Utilize flexible fire suppression with cultural resource advisor.	Same as Alternative B.	Same as Alternative B.
Low Density Site (L)	Manage under Section 106 and appropriate guidance when threatened by land disturbing activities.	Require reconnaissance-level inventory prior to land disturbing activities. Consider areas for elimination of inventory requirements when sufficient information is	Same as Alternative B.	Same as Alternative B.

Note: (L) denotes land use planning decisions and (I) denotes implementing decisions.

TABLE ES-1: SUMMARY OF ALTERNATIVES

	NO ACTION	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
		available. Require mitigation measures appropriate to the resource, degree of threat, and redundancy of information.		
Low Density Site Area (L) (continued)		Fire control would be discretionary with no resource advisor required.		
SPECIAL DESIGNATION – AREA OF CRITICAL ENVIRONMENTAL CONCERN				
Modification/ Elimination of Sloan Rock Art District ACEC (L)	Maintained existing ACEC (Figure 2.5).	Modify the ACEC boundary to match the Sloan Canyon Petroglyph Site boundary as listed in the National Register of Historic Places (Figure 2.11).	Eliminate the ACEC.	Same as Alternative C.
VISUAL RESOURCES				
Establish VRM Classes (L)	Apply VRM classes established in the *Las Vegas RMP*, except the Wilderness would be VRM Class I (Figure 2.6).	VRM classes would be established based on the Visual Resource Inventory, including designating the Wilderness as VRM Class I (Figure 2.12).	Same as Alternative B, except class areas vary (Figure 2.23).	Same as Alternative B, except class areas vary (Figure 2.33).
INTERPRETATION				
Degree Interpretive and Informational Material will be Visible to Users	No similar action.	Minimize presence of interpretive media. Visible media would be low profile, natural in color, and used to orient visitors while providing	Outside the Wilderness, allow low profile, visually unobtrusive interpretive media in high use areas. Focus on highly visible media at staging	Outside the Wilderness, provide visible interpretive media designed to draw attention to interpreted resources (where appropriate).

Note: (L) denotes land use planning decisions and (I) denotes implementing decisions.

Table ES-1. SUMMARY OF ALTERNATIVES

	NO ACTION	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
(I)		resource protection.	areas (parking areas, trail heads). Inside the Wilderness, allow limited amounts of small signage and interpretive media in high use areas for the purposes of resource protection and the enhancement of wilderness values.	Locate media to best interpret the resources. Provide a full range of interpretive media pending other resource considerations.
		Place stationary interpretive media (kiosks, bulletin boards) in highly developed areas. Produce other interpretive media to accompany visitors into the NCA.	Limit stationary interpretive media to specific areas identified for interpretation and design to reduce visual impacts. Provide a full range of interpretive media with visibility decreasing as the distance from developed areas increases.	
		Focus on use of interactive virtual interpretation media.	Same as Alternative B.	
FACILITIES				
NCA Facilities (L)	No similar action.	Construct a visitor contact station near the NCA boundary at the north entrance to Sloan Canyon. Provide interpretative material to assist in resource	Construct a multipurpose visitor center near the NCA boundary at the north entrance to Sloan Canyon. The center could provide NCA office space, serve as an access and	Same as Alternative C.

Note: (L) denotes land use planning decisions and (I) denotes implementing decisions.

TABLE ES-1: SUMMARY OF ALTERNATIVES

	NO ACTION	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
		protection, NCA personnel, and serve as an access point for the Sloan Canyon Petroglyph Site. Locate a separate facility near the contact station to support maintenance and other administrative purposes.	control point for the Sloan Canyon Petroglyph Site, and be the headquarters for patrols and rangers. The center could include space for visiting scholars, maintenance and storage, interpretive areas, amphitheater, classrooms, bookstore, and concessions.	
		Construct a Hidden Valley Trailhead consisting of a gravel parking lot, suitable for 10 cars, an interpretive kiosk, and vault toilet at the NCA boundary.	Construct a Hidden Valley Trailhead consisting of a gravel parking lot, suitable for 15 cars, an interpretive kiosk, and vault toilet at the NCA boundary.	Construct a Hidden Valley Trailhead consisting of a gravel parking lot for 20 cars and an equestrian staging area in the NCA at the Wilderness boundary, near the south entrance to Sloan Canyon. A visitor contact station would be would be located at the Hidden Valley Trailhead and would be constructed with interpretive kiosks, vault toilets, and a near by 1-acre/20-site dry campground.
		Construct a Dutchman Pass Trailhead consisting of a gravel parking lot, suitable for 20 cars, an interpretive kiosk, and vault toilet would be constructed near the northeastern boundary of the NCA.	Construct a Dutchman Pass Trailhead consisting of a gravel parking lot, suitable for 30 cars, an equestrian staging, an interpretive kiosk, and vault toilet would be constructed near the northeastern boundary of the NCA.	Construct a Dutchman Pass Trailhead consisting of a hardened gravel parking lot, suitable for 60 cars, an equestrian staging area, an interpretive kiosk, and bathrooms with water and

Note: (L) denotes land use planning decisions and (I) denotes implementing decisions.

Table ES-1. SUMMARY OF ALTERNATIVES

	NO ACTION	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
		(Figure 2.13)	Construct a Quo Vadis Trailhead consisting of a ½ acre gravel parking lot with an interpretive kiosk and vault toilet. (Figure 2.24)	power. Construct a Quo Vadis Trailhead consisting of a gravel or paved parking lot large enough to accommodate vehicles pulling OHV or horse trailers. The trailhead would have a gravel equestrian staging area, an interpretive kiosk, and vault toilet. Construct a Sutor Hills Trailhead consisting of a 5-car gravel parking with an interpretive kiosk and vault toilet. (Figure 2.34).
Offsite NCA Information (L)	No similar action.	Provide NCA information at offsite locations throughout the City of Henderson (e.g., schools and libraries).	Same as Alternative B.	Provide NCA information at offsite locations throughout the City of Henderson, Las Vegas, and Boulder City (e.g., schools and libraries).
LANDS AND REALTY				
Consideration of New Linear and Site-Type ROWs (L)	Consider applications of new ROWs or any amendments to existing ROWs on a case-by-case basis within the NCA, under FLPMA, if the action furthers the purpose of the NCA in Section 602 of the Sloan Canyon NCA	Consider applications of new ROWs or any amendments to existing ROWs on a case-by-case basis within the NCA, if the action furthers the purpose of the NCA in Section 602 of the Sloan Canyon NCA Act (Figure	Same as Alternative B.	Same as Alternative B.

Note: (L) denotes land use planning decisions and (I) denotes implementing decisions.

TABLE ES-1: SUMMARY OF ALTERNATIVES

	NO ACTION	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
	Act (Figure 2.7).	2.14). Evaluation criteria could include, in part: Direct benefit to the NCA, such as utilities to serve NCA facilities Maintaining or decreasing visual contrast Reduction of disturbed area Improvement in road/ROW alignment.		
Commercial Film Permit (I)	Authorize commercial film permits after adequate NEPA analysis.	Issue no commercial film permits within the NCA.	Issue no commercial film permits within the Wilderness. Limit film permits to designated trails and trailheads. Vehicles associated with the permit may not occupy more than 50% of the parking area capacity. Filming would be prohibited on weekends and federal holidays. No new disturbance allowed. Maximum crew size per permit of 15 people for still and motion photography per permit.	Same as Alternative C except: Maximum crew size per permit of 25 people for still photography and 50 people for motion photography.
TRANSPORTATION (Licensed Motorized Vehicles)				
Road	No roads or routes	The North McCullough Road,	Designate the North	Designate the North

Note: (L) denotes land use planning decisions and (I) denotes implementing decisions.

Table ES-1. SUMMARY OF ALTERNATIVES

	NO ACTION	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
Designations (L)	designated for public licensed vehicle use – all roads closed (Figure 2.8)	when constructed, would be open for licensed vehicles. Close all other roads and routes to public licensed vehicle use (Figure 2.15).	McCullough Road, Dutchman Pass Road, Quo Vadis Mine Road, and Rattlesnake Canyon Road open for public use by licensed vehicles. Close all other roads and routes public licensed vehicle use (Figure 2.25).	McCullough Road, Dutchman Pass Road, Quo Vadis Mine Road, Rattlesnake Canyon Road, East-West Power Line Road (Serial Number -33006), and Sutor Hills Road open for public use by licensed vehicles. Close all other roads and routes public licensed vehicle use (Figure 2.35).
VEGETATION MANAGEMENT (Including Special Status Species)				
Treatment Actions for Disturbed Areas (L)	Rehabilitated, reclaimed, or re-vegetated areas subjected to surface disturbing activities where feasible. When rehabilitating, manage for optimum species diversity by seeding with native species, as appropriate.	Managed vegetation on all applicable MEA zones to promote native plant communities and restore the plant productivity of disturbed areas. Restore disturbed areas in the Wilderness through natural processes. Landscape developed areas using only plant species native to the NCA.	Same as Alternative B. Restore disturbed areas in the Wilderness after completion of minimum requirement/minimum tool analysis. Same as Alternative B.	Same as Alternative C. Same as Alternative B.
Management of Activities that Impact	No similar action.	Improve or restore to natural conditions any surface disturbance that adversely affects native plant	Minimize impacts to native plant communities adversely affected by surface disturbance.	Same as Alternative C.

Note: (L) denotes land use planning decisions and (I) denotes implementing decisions.

TABLE ES-1: SUMMARY OF ALTERNATIVES

	NO ACTION	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
Vegetation (I)		communities. Manage disturbance threshold before restoring natural or improving the condition of native plant communities by MEA zone (Figure 2.16).	Same as Alternative B, except MEA zones vary (Figure 2.26).	Same as Alternative B, except MEA zones vary (Figure 2.36).
Priority for Restoration Projects (L)	No similar action.	Priority for restoring and improving conditions of native plant communities is Restoration Zone 3.	Priority for restoring and improving conditions of native plant communities is Restoration Zone 1 and 2.	Priority for restoring and improving conditions of native plant communities is Restoration Zone 1.
Collection of Vegetation (Seeds and/or Live Plants) (I)	Allow casual collection throughout the NCA, and commercial collection allowed outside the Wilderness.	Prohibit casual and commercial collection throughout NCA.	Allow casual collection outside the Wilderness to further the objectives of the NCA. Prohibit commercial collection throughout the NCA.	Same as Alternative C, except allow commercial collection outside the Wilderness.
Special Status and Sensitive Species Management (L)	Manage Special Status Species for full regulatory compliance.	Maintain and protect Sensitive and Special Status Species habitats to ensure suitable conditions and population viability. Encourage scientific research and monitoring of Special Status Species. Develop partnerships with universities and other educational groups to facilitate research on and monitoring of Special Status Species.	Same as Alternative B.	Same as Alternative B.
Potential	Evaluate proposed	Same as No Action, except	Same as No Action, except	Same as Alternative C.

Note: (L) denotes land use planning decisions and (I) denotes implementing decisions.

Table ES-1. SUMMARY OF ALTERNATIVES

	NO ACTION	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
Threats to Sensitive or Special Species from Surface Disturbance (I)	disturbance areas for the presence of Special Status Plant Species.	avoid surface disturbing activities within Sensitive or Special Status Species and federally listed species habitat, if feasible.	avoid surface disturbing activities within known locations of federally listed plant species, if feasible.	
WILDLIFE MANAGEMENT (Including Special Status Species)				
Bighorn Sheep Habitat Management (I)	Manage in accordance with the current NDOW MOU and for full regulatory compliance.	Same as No Action, plus: Visitors would be educated to be sensitive to bighorn sheep lambing areas from January to May.	Same as Alternative B, plus: Limit designation and construction of trails, facilities, and ROWs within known lambing areas. Limit surface disturbing activities within known lambing areas from January through May. Avoid trail construction in areas of known bighorn sheep movement between the North and South McCullough Mountains.	Same as No Action, plus: No restrictions on visitor use or areas accessed.
Reptile Habitat Management (I)	Allow casual collection of reptiles throughout the NCA, but commercial collection allowed only outside the Wilderness.	Prohibit casual and commercial collection of reptiles throughout the NCA.	Allow casual collection of reptiles throughout the NCA, outside the Wilderness. Prohibit any surface disturbing activity related to casual collection. Prohibit commercial collection.	Same as Alternative C, except: Prohibit any surface disturbing activity related to casual or commercial collection. Allow commercial collection outside the Wilderness.

Note: (L) denotes land use planning decisions and (I) denotes implementing decisions.

TABLE ES-1: SUMMARY OF ALTERNATIVES

	NO ACTION	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
Raptor Management (I)	Manage potential nesting areas for full regulatory compliance.	Same as No Action, plus: Visitors would be educated to be sensitive to raptor nesting areas in April and May.	Same as Alternative B, plus: Avoid designation and construction of trails, facilities, or ROWs within known nesting areas. Construction of trails, facilities, or ROWs would be seasonally restricted within a radius of occupied raptor nesting sites. Distance and seasonal restriction could be determined on a case-by-case basis and would depend on the species involved, natural topographic barriers, and line-of-sight distances.	Same as No Action, plus: No restrictions on visitor use or areas accessed.
Scientific Research (I)	Issue wildlife specimen collection permits on a case-by-case basis.	Do not issue wildlife specimen collection permits. Allow wildlife observation studies as long as the study does not harass species. Implement surveys for appropriate species.	Same as Alternative B, except: Issue wildlife specimen collection permits for scientific purposes on a case-by-case basis. Require all applicants who intend to collect specimens of listed species to obtain permits from NDOW and USFWS.	Same as Alternative C.
Area/Trail Closures (L)	No similar action.	Permanently close trails or areas or restrict activities when closures would protect wildlife	Close trails using seasonal or small area closures on a case-by-case basis when closures would protect wildlife species	Close trails only in response to critical threats to wildlife. Employ seasonal and site

Note: (L) denotes land use planning decisions and (I) denotes implementing decisions.

Table ES-1. SUMMARY OF ALTERNATIVES

	NO ACTION	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
		species.	during critical life periods.	closures as the primary closure techniques.
Introduced Species, including Dogs and Cats (I)	No similar action.	Remove feral animals from the NCA by coordinating with appropriate local, State, and Federal agencies on animal trapping and transfer of populations posing a threat to wildlife health or human health and safety. Prohibit bird feeders in the NCA and educate visitors about the impacts of bird feeders on the wildlife.	Same as Alternative B. Prohibit bird feeders within the NCA.	Same as Alternative C.
Special Status Species Management (L)	Manage Special Status Species for full regulatory compliance and consistent with the applicable USFWS Biological Opinion.	Maintain and protect Special Status Species habitat to ensure suitable habitat conditions and viable populations. Emphasize scientific research and monitoring of Special Status Species. Encourage partnerships with universities and other educational groups to facilitate research and monitoring of Special Status Species.	Same as Alternative B.	Same as Alternative B.
Potential Threats to Special Status	No similar action.	Avoid disturbance or development in areas of Special Status Species potential	Mitigate disturbance or development in areas of Special Status Species habitat	Same as Alternative C.

Note: (L) denotes land use planning decisions and (I) denotes implementing decisions.

TABLE ES-1: SUMMARY OF ALTERNATIVES

	NO ACTION	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
Species from Recreation (I)		habitat. Develop and distribute interpretive information that emphasizes the potential effects of recreation use on wildlife.	discovered by conducting site-specific surveys. Same as Alternative B.	
LIVESTOCK GRAZING				
Placement of Mineral and Salt Supplement (L)	Locate salt and mineral supplements a minimum of one mile from water.	Prohibit salt and mineral supplement placement within the NCA.	Same as Alternative B.	Same as Alternative B.
Range Improvements for Livestock Grazing Purposes (L)	Develop new range improvements, as needed, and if consistent with the Sloan Canyon NCA Act, to reach a uniform distribution of livestock consistent with management objectives. Authorize no new range improvements for livestock grazing purposes within the Wilderness.	Authorize no new range improvements for livestock grazing purposes within the NCA.	Same as Alternative B.	Same as Alternative B.
GEOLOGY AND SOILS				
Management of Geologic Research (I)	Manage for full regulatory compliance.	Allow nonintrusive geologic research throughout the NCA and manage for full regulatory compliance.	Allow intrusive geologic research throughout the NCA by permit and manage for full regulatory compliance. Prohibit intrusive geologic	

Note: (L) denotes land use planning decisions and (I) denotes implementing decisions.

Table ES-1. SUMMARY OF ALTERNATIVES

	NO ACTION	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
			research in the Sloan Canyon Petroglyph Site and its northern access. Apply appropriate restrictions in the remainder of the Wilderness.	

Note: (L) denotes land use planning decisions and (I) denotes implementing decisions.

CHAPTER ONE

Purpose and Need

1. PURPOSE AND NEED

The cities of Las Vegas and Henderson, Nevada, form one of the fastest growing metropolitan areas in the United States. The well-known lights of The Strip are now surrounded by a rapidly expanding urban and suburban metropolitan area of homes, businesses, and infrastructure. Yet immediately on the edges of this expansion, much of the land is open and undeveloped. This constantly changing interface of urban and natural settings provides unique challenges and opportunities for the Bureau of Land Management (BLM) Las Vegas Field Office, which manages public lands comprising much of this open space.

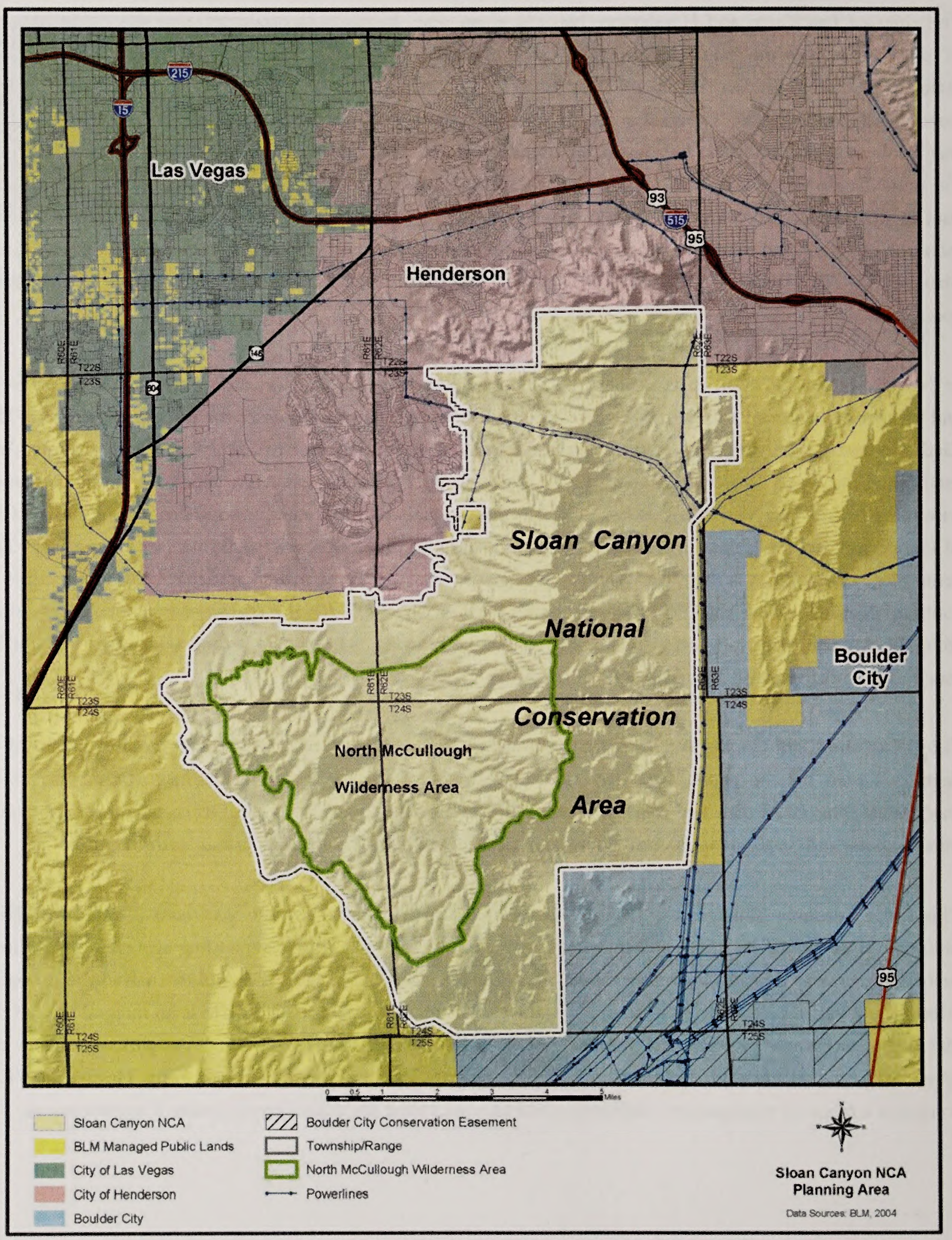
> ***The purpose of the Sloan Canyon NCA Act is as follows:***
>
> *". . . to conserve, protect, and enhance for the benefit and enjoyment of present and future generations the cultural, archaeological, natural, wilderness, scientific, geological, historical, biological, wildlife, educational, and scenic resources of the [Sloan Canyon] Conservation Area."*

In November 2002, Congress designated the Sloan Canyon National Conservation Area (NCA) to preserve and protect a portion of southern Nevada's Mojave Desert as a permanent asset for future generations. The Clark County Conservation of Public Land and Natural Resources Act of 2002 (the Clark County Act) established the Sloan Canyon NCA and the North McCullough Wilderness Area, which is entirely contained within the NCA. The 48,438-acre NCA, which forms the natural, mountainous southern skyline of the City of Henderson and Las Vegas, contains unique scenic and important archaeological sites (see Figure 1.1). The centerpiece of the NCA is the Sloan Canyon Petroglyph Site, one of the most significant cultural resources in southern Nevada. More than 300 rock art panels with nearly 1,700 designs represent native cultures dating from the Archaic to historic era. Eventually, residential housing, schools, parks, and businesses will border much of the northern and western edges of the NCA.

Title VI of the Clark County Act, hereafter referred to as the Sloan Canyon NCA Act, requires the BLM to develop a plan for the appropriate use and management of the NCA and Wilderness within 3 years of enactment. This BLM planning effort is being conducted by the Las Vegas Field Office in coordination with other Federal and State agencies, local governments, affected Native American Tribes, and the public.

This Draft Resource Management Plan and associated Environmental Impact Statement (Draft RMP/EIS) presents the results of 18 months of intense, systematic work by the BLM, cooperating agencies, and a third-party contractor to develop alternative approaches for management of the NCA and to analyze the probable effects if the various alternatives were implemented. Presenting the Draft RMP/EIS is an integral part of the planning process to provide the public, Tribes, and Federal, State, and local governments with the opportunity to review and comment on BLM's potential management actions. The Draft RMP/EIS compares a range of management alternatives and identifies their associated environmental consequences.

Figure 1.1. Sloan Canyon NCA Planning Area



The management alternatives include current management practices (No Action Alternative); an alternative that emphasizes natural character; one that allows moderate developed use while maintaining natural character; and another that emphasizes developed uses. Understanding foreseeable impacts of these management alternatives will help BLM make an informed decision on the future management direction for the NCA.

1.1 BACKGROUND

The Sloan Canyon NCA Act directs the Secretary of the Interior, through the BLM, to manage the Sloan Canyon NCA in a manner that conserves, protects, and enhances the Conservation Area's resources for the benefit and enjoyment of present and future generations. The Sloan Canyon NCA Act identifies cultural, archaeological, natural, wilderness, scientific, geological, historical, biological, wildlife, educational, and scenic resources as important reasons for the establishment of the NCA. The designation of the North McCullough Wilderness Area, administered under the Wilderness Act of 1964 and the Clark County Act, Title II ("Wilderness Areas"), requires that 14,763 acres within the NCA are preserved and protected in their natural, primitive condition.

The Sloan Canyon NCA Act and the Clark County Act, Title II ("Wilderness Areas"), sets a number of ground rules for the development of a management plan for the NCA and the Wilderness, including the following:

- **Uses**—Allow only such uses of the NCA that conserve, protect, and enhance the Conservation Area's resources.
- **Motorized Vehicles**—Designate roads and trails for motorized vehicle use; all others will be closed except for administrative or emergency purposes.
- **North McCullough Road and Trail Right-of-Way (ROW)**—Recommend a location for a ROW to provide the City of Henderson rural roadway access to the NCA.
- **Non-Motorized Trails**—Convey to the City of Henderson two ROWs for nonmotorized trails.
- **NCA Funding**—Sell nearby public land to fund the conservation and management of the NCA, including the construction of facilities and research on archaeological and geological resources.
- **Litter Cleanup Plan**—Develop a litter cleanup plan and public lands awareness campaign.
- **Grazing**—Allow permitted grazing to continue, subject to all applicable laws, regulations, and executive orders.
- **Mineral Rights**—Withdraw all lands from mineral exploration, leasing, and development, subject to valid and existing rights.

- **Hunting**—Maintain the State of Nevada jurisdiction with respect to hunting and trapping, although they may be restricted in established areas and periods for safety or administrative reasons.

The Sloan Canyon NCA Act also declared that no buffer zones or limitations on uses of land outside the NCA are to be established, and the Clark County Act, Title II ("Wilderness Areas"), contains directives for management of all 18 wilderness areas designated by the Act, including the North McCullough Wilderness Area.

Vision

The BLM, through discussions with cooperating agencies and based on input received during the public scoping process, and the direction, intent, and spirit of the Sloan Canyon NCA Act, developed the following vision for managing the NCA:

The BLM will manage the Sloan Canyon NCA to preserve, protect, and enhance the area's cultural features and natural resources and wilderness values for the benefit and enjoyment of present and future generations by—

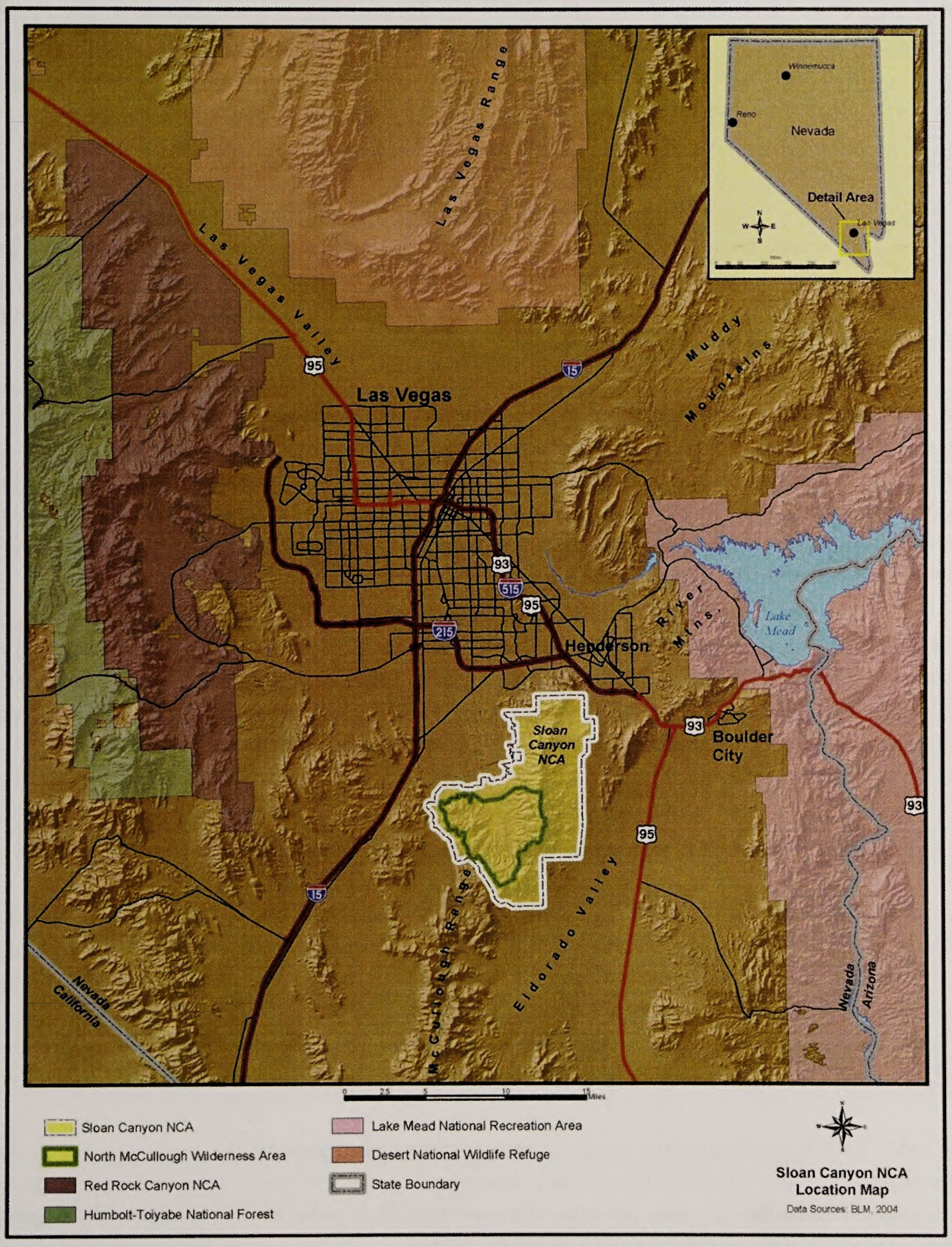
- *Protecting the Sloan Canyon Petroglyph Site and respecting the canyon for its importance to Native Americans.*
- *Providing education on the importance of preserving and protecting the area's cultural, natural, and wilderness values.*
- *Providing information and education on Sloan Canyon NCA's resources in a creative manner.*
- *Providing recreational opportunities that are compatible with and protect the various elements of the natural landscape.*

1.2 DESCRIPTION OF THE NATIONAL CONSERVATION AREA

The Sloan Canyon NCA encompasses the northern portion of the McCullough Range and lies southeast of the City of Las Vegas and borders the City of Henderson (Figure 1.2). Volcanoes formed the McCullough Range and a long basalt spine dominates the topography within the NCA. The eastern slopes of the range are much steeper than the western slopes and the ridgeline offers excellent views of the Las Vegas Valley, numerous mountains, and the Eldorado and Jean Dry Lakes. Elevations within the NCA range from approximately 1,800 feet on the southern border to 5,000 feet at Black Mountain.

Archaeological evidence suggests that humans have used the NCA resources for nearly 7,000 years. Sloan Canyon, located within the southwestern portion of the NCA, contains more than 1,700 rock art elements within a 0.5-mile stretch of canyon. Although cultural affiliation has not been determined for each panel, archaeologists studying Sloan Canyon believe it has been used by many previous cultures. An ethnographic study completed for this Draft RMP/EIS and ongoing consultation with tribes has confirmed the cultural significance of the Sloan Canyon Petroglyph Site to present-day area Native Americans. In addition to Sloan Canyon Petroglyph Site, cultural resources inventories identified 19 other rock art sites in and around the NCA but never in the quantities or as elaborate as in Sloan Canyon. The Sloan Canyon Petroglyph Site has been listed on the National Register of Historic Places since 1978.

Figure 1.2. Location of the Sloan Canyon National Conservation Area



The McCullough Range is located in the Mojave Desert near the confluence of two geographic zones, the Colorado Plateau and the Great Basin. This setting plays a major role in the natural characteristics of the NCA. The primary ecosystem in northern portion of the McCullough Range is Mojave Desert Scrub, which is dominated by creosote and bursage with scattered stands of cholla cactus in varying densities depending on elevation. The Blue Diamond cholla, considered a potential candidate species by the U.S. Fish and Wildlife Service (USFWS), is also found within the NCA. Small communities of unique and isolated vegetation types, including several Special Status Species of beardtongue exist within canyon and wash microclimates.

Although essentially only one ecosystem type is represented, the NCA supports a variety of wildlife, including desert bighorn sheep, mountain lions, Gila Monsters, and the threatened desert tortoise. Two artificial wildlife water locations (guzzlers) were developed within the NCA through the cooperative efforts of the BLM, the Nevada Department of Wildlife (NDOW), and private conservation groups interested in improving habitat for bighorn sheep and other wildlife species.

Recreation is becoming an important use of the North McCullough Range. As urban growth in the Las Vegas Valley has enveloped the northern portion of the NCA, hiking, mountain biking, and off-highway vehicle (OHV) use have become more prevalent. This can be contrasted to the southern portion of the NCA, which contains the North McCullough Wilderness Area. Because of its rugged character, which limits access, this southern portion received little visitation in the past and opportunities abound for solitude, and primitive and unconfined recreation.

Because of the NCA's proximity to Las Vegas, about 40 existing ROWs were on file when the designation occurred. These ROWs are primarily for power lines, flood control facilities, access roads, and communication equipment. Although the Sloan Canyon NCA Act withdraws the NCA and wilderness from mining entry and the establishment of new claims, 11 existing mining claims were located within the NCA boundary at the time of enactment.

1.3 Purpose and Need for the Resource Management Plan

The purpose of this RMP is to provide guidance for BLM's management of the NCA consistent with the spirit and intent of the Sloan Canyon NCA Act and other existing statutes, regulations, and policy, including the Federal Land Policy and Management Act of 1976 (FLPMA, 43 U.S.C. 1701 et seq.). This planning effort is comprehensive in nature, evaluating existing management plans and resolving or addressing NCA issues identified through agency, interagency, and public scoping efforts. This effort also identifies the area's vision, long-range management goals, objectives, and actions and options to meet those objectives.

The Draft RMP/EIS evaluates and compares current management practices (known as the No Action Alternative) and three potential management alternatives, along with their associated environmental consequences. Understanding these potential effects will help BLM make informed decisions on managing and allocating uses of the land and resources within the NCA.

1.3.1 Legislative Requirements

> ***The Sloan Canyon NCA Act requires development of a management plan, including—***
>
> - *Description of NCA uses and management*
> - *Designation of authorized vehicle use*
> - *Recommendations for minimizing visual impacts*
> - *A litter cleanup plan*
> - *Location recommendation for a City of Henderson rural road*

The legislative requirement for developing this Draft RMP/EIS comes from the Sloan Canyon NCA Act, Title VI of the Clark County Conservation of Public Land and Natural Resources Act of 2002 (16 United States Code [U.S.C.] 1132, Public Law 107-282), which established the NCA. The legislation mandates that BLM consult with the State of Nevada, the City of Henderson, Clark County, and any other interested persons to develop a management plan for the conservation area.

The implementation of this RMP constitutes a major Federal action and is therefore subject to the National Environmental Policy Act of 1969 (NEPA) (42 USC 4321 et seq.), which requires federal agencies to consider environmental consequences in the decisionmaking process. The President's Council on Environmental Quality issued regulations for implementing NEPA, including provisions on the content and the procedural aspects of the required environmental analysis (40 Code of Federal Regulations [CFR] 1500). The most comprehensive level of analysis is an EIS—the level being applied to the Sloan Canyon NCA Draft RMP.

1.3.2 National Landscape Conservation System

The Sloan Canyon NCA, when designated by Congress, became a component of the BLM's National Landscape Conservation System (NLCS). This system organizes BLM's premier designations, including national conservation and wilderness areas, in order to increase public awareness of the cultural, scientific, educational, ecological, and other values associated with these areas. The goals, objectives, and management actions of this Draft RMP/EIS are consistent with the objectives developed by BLM to achieve the NLCS vision of keeping landscapes healthy, wild, and open (BLM 2001):

- Above all, commit to conserving, protecting, and restoring special values of the landscape, as directed by BLM's Organic Act (FLPMA).
- Build and sustain community relationships to foster collaborative stewardship.
- Continue to manage compatible uses and valid existing rights, consistent with the values for which the area was designated.
- Provide opportunities for the individual to explore and discover these special areas.
- Foster scientific research and public education and acquire a better understanding of how to manage these landscapes.

1.4 THE PLANNING PROCESS

The BLM develops plans to protect resources and to guide management of its public lands. These land use plans and associated decisions are the basis for every on-the-ground action BLM undertakes, and they ensure management strategies comply with the intent of Congress and subsequent BLM policy. The BLM has three primary levels of land use planning decisions: RMP level, activity level, and site-specific level. This Draft RMP/EIS focuses on broad resource objectives and direction, while providing some activity-level guidance and some site-specific decisions.

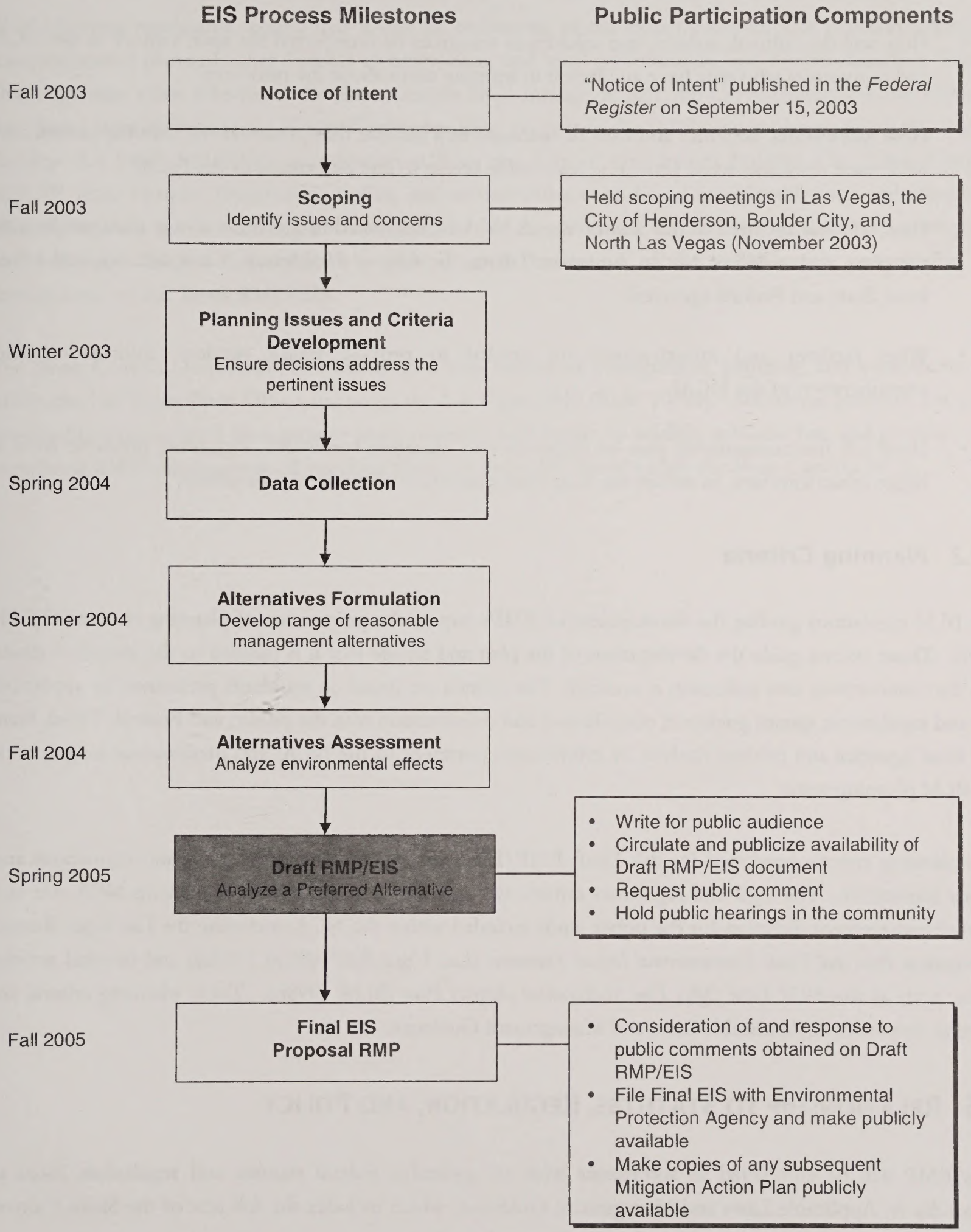
The BLM's multistep planning process (described in 43 CFR 1600) was used to develop this plan. This Draft RMP/EIS represents the culmination of prior Sloan Canyon planning activities, which has included extensive public and cooperating agency involvement. In accordance with the requirements of the National Environmental Policy Act and FLPMA, the completed RMP will be developed through an open, collaborative public process and will be based on public input solicited when the planning effort began. Input received on this Draft RMP/EIS will be considered and incorporated, as appropriate, in the final document. The planning process is described in greater detail below; in Chapter 5, Consultation and Coordination; and in Appendix A, Applicable Laws and Management Guidance. Figure 1.3 presents the Sloan Canyon planning process, including key timeframes for the completion of the RMP.

1.4.1 Planning Issues

The process for developing the Draft RMP/EIS for the Sloan Canyon NCA and North McCullough Wilderness Area began with identifying issues regarding perceptions of how the area should be managed. The issues identified by stakeholders and interested parties for the Sloan Canyon NCA relate directly to requirements of the Sloan Canyon NCA Act and the Clark County Act, Title II ("Wilderness Areas") or resource management and land use planning. Although issues received special attention in the development of the Draft RMP/EIS, other basic environmental and management considerations were also incorporated into the plan alternatives to provide comprehensive management guidance for all resources and to satisfy legal requirements.

Six overarching planning issues were identified in the *Baseline Assessment of the Needs And Issues for Developing a Management Plan for the Sloan Canyon National Conservation Area* (BLM 2003a). These issues were reinforced and expanded by the public, Tribes, and State and local government cooperators through the scoping process:

Figure 1.3. Sloan Canyon Planning Process



- How will the cultural, natural, and wilderness resources of the Sloan Canyon NCA and the North McCullough Wilderness Area be preserved for current and future generations?

- How will the cultural, natural, and wilderness resources be interpreted for both visitors to the NCA and nonvisitors who may have an interest in learning more about the resources?

- How will visitors' activities and uses be managed in a manner that preserves the cultural, natural and wilderness resources while providing reasonable access to and enjoyment of the NCA?

- How will management of the Sloan Canyon NCA be integrated in a manner that is compatible with the plans and needs of Native American Tribes, the City of Henderson, Clark County, and other local, State and Federal agencies?

- What facilities and infrastructure are needed to provide visitor services, information and administration of the NCA?

- How will the management plan be responsive to changing conditions, stemming primarily from a larger urban interface, to ensure the long-term protection of the area's resources?

1.4.2 Planning Criteria

The BLM regulations guiding the development of RMPs require the preparation of planning criteria (43 CFR 1610). These criteria guide the development of the plan and ensure that it is tailored to the identified issues and that unnecessary data collection is avoided. The criteria are based on standards prescribed by applicable law and regulations; agency guidance; consultation and coordination with the public, and Federal, Tribal, State and local agencies and entities; analysis of information pertinent to the NCA; and professional judgment of the BLM planning team.

The planning criteria developed for this Draft RMP/EIS fall into two categories: laws and regulations and policy statements. The legal and regulatory criteria are based, in part, on the Sloan Canyon NCA Act and current management direction for the public lands included within the NCA, including the *Las Vegas Resource Management Plan and Final Environmental Impact Statement* (*Las Vegas RMP* [BLM 1998a]) and detailed activity plans, such as the *1998 Field Office Fire Management Activity Plan* (BLM 1998b). These planning criteria are listed in Appendix A, Applicable Laws and Management Guidance.

1.5 Relationship to Statutes, Regulation, and Policy

This RMP will be completed in accordance with all applicable federal statutes and regulations listed in Appendix A, Applicable Laws and Management Guidance, which includes the full text of the Sloan Canyon NCA Act, the Clark County Act, Title II ("Wilderness Areas").

1.6 Consistency With BLM and Other Agency Plans

BLM planning regulations require that RMPs be consistent, to the extent possible, with officially approved resource-related plans of other Federal agencies, State and local governments, and Native American Tribes. Other agencies' plans relevant to the Sloan Canyon NCA include, in part, the *City of Henderson Master Plan* and the *Clark County Multiple Species Habitat Conservation Plan.* As part of the collaborative planning process used to develop this Draft RMP/EIS, representatives from the City of Henderson, Boulder City, Clark County, NDOW, State Historic Preservation Office, and several tribes contributed considerable time and input into ensuring that the actions and impacts contained in this document are consistent with their respective plans and policies. Chapter 5 provides a more detailed description of the collaboration process for the development of this Draft RMP/EIS.

The Sloan Canyon Draft RMP/EIS builds on a long history of management, planning, and implementation within the Las Vegas Field Office, including the *Las Vegas RMP* (BLM 1998a). Additional guidance has been provided by activity-level management plans covering such topics as wildlife, wildland fire, and grazing. The completed RMP will supersede all previous plans for the public lands within the Sloan Canyon NCA.

CHAPTER 2

Alternatives

2. ALTERNATIVES

This chapter describes four management alternatives for the Sloan Canyon National Conservation Area (NCA): the No Action Alternative (Alternative A) and three action alternatives: Alternatives B, C, and D. The chapter also provides the resource goals, objectives, and management direction common to all four alternatives. The alternatives were developed to evaluate combinations of management actions that address NCA planning issues and concerns. The alternatives themselves do not constitute decisions, but rather present a range of approaches for managing resources and activities within the NCA. Development of these alternatives was guided by the Sloan Canyon NCA Act, the Clark County Act, Title II ("Wilderness Areas"), the National Environmental Policy Act (NEPA), Federal Land Policy Management Act (FLPMA), National Landscape Conservation System, Bureau of Land Management (BLM) planning regulations, the *Las Vegas Resource Management Plan (Las Vegas RMP)*, the Sloan Canyon NCA planning criteria, and input from cooperating agencies, tribes, BLM resource specialists, and the public through the scoping process. BLM has the discretion to select an alternative in its entirety or to combine aspects of the various alternatives presented in this Draft RMP/Environmental Impact Statement (EIS).

As part of the planning process, the public is invited to comment on this Draft RMP/EIS. The reader may choose to address either entire alternatives or recommend elements of the various alternatives when commenting on this document. The BLM will take these comments into account and prepare a final plan and Record of Decision (ROD) containing the decisions that will guide future management of the Sloan Canyon NCA for the next 20 years. Once the RMP is adopted, changes to it would require a formal public amendment or revision process with corresponding levels of environmental analyses in compliance with the NEPA.

The alternatives in this Draft RMP/EIS contain actions related to both general "land use planning" decisions and "implementing" decisions. The land use planning decisions establish goals and objectives for managing the NCA's resources, as well as associated actions and uses. The implementing decisions constitute BLM's final approval for on-the-ground actions to proceed.

Any person who participated in the RMP process and has an interest that may be adversely affected may protest the proposed land use planning decisions contained in the Final RMP (43 CFR 1610.5-2). The protests may raise only those issues that were submitted for the record during the planning process. Protests must be submitted to the BLM Director after the Final RMP/EIS is published in the fall of 2005 and prior to the issuance of the ROD. After that time, there is no further opportunity for decision review or administrative remedies for protest resolution. Unlike land use decisions, implementing decisions are not subject to protest but are subject to administrative remedies and review, primarily through appeals to the Office of Hearings and Appeals (BLM 2004g). The Summary of Alternatives (Table ES-1) indicates which actions are land use and which are implementing.

This chapter discusses how the alternatives were developed, their overall themes, the preferred alternative, and the planning background. Readers will notice an increased level of detail for actions in the recreation and

wilderness resources. Although recreation use in the NCA has historically been low, visitation to the NCA will likely increase as the population of the Las Vegas Valley and the City of Henderson continues to grow and awareness of the NCA increases. Hence, additional planning detail would be required to resolve recreation issues and concerns. This document also contains the information necessary to develop a wilderness management plan.

Please note that management actions often affect multiple resources. For example, many of the protections for the culturally important Sloan Canyon Petroglyph Site can be found in actions under the recreation and wilderness resources. In addition, readers will notice that the following resources do not contain management actions with a range of alternatives: fire management; water resources and quality; air quality, minerals, abandoned mines, and hazardous materials. Because there are no major planning issues or concerns related to these resources, the management of these resources can be accomplished through either management direction common to all alternatives (Section 2.5) or through BLM standard operating procedures (Appendix A). Consequently, these resource areas are not specifically discussed in Alternatives A through D.

2.1 ALTERNATIVE DEVELOPMENT

The goal of alternatives development was to construct a range of management actions and tools to balance the predicted increase in use of the NCA with protection of the NCA's outstanding characteristics, such as its primitive character and cultural resources. Alternatives must meet the purpose and need of the NCA management plan (Chapter 1); be viable and reasonable; provide a mix of resource protections, management use, and development; be responsive to issues identified during scoping; and meet the established planning criteria, federal laws, regulations, and BLM planning policy (Appendix A).

The first step in the planning process was to develop a vision for the NCA, which is to maintain the unique opportunity for visitors to experience the relatively undeveloped Mojave Desert within a short drive from the urban Las Vegas Valley. Once this framework was established, nearly all of the comments and recommendations provided by the public, Tribes, cooperating agencies, and BLM resource specialists varied between retaining the natural character of the NCA and having different levels of NCA facility development and resource use. Alternative themes were therefore named and defined to reflect the various development levels (Alternative B: Emphasize Natural Character; Alternative C: Moderate Developed Use; and Alternative D: Emphasize Developed Uses). All of the comments and recommendations were placed under one of the four alternative management scenarios. With the exception of recommendations that were outside the scope of the Sloan Canyon NCA Act and Clark County Act, Title II ("Wilderness Areas") and that could not be enacted for statutory or regulatory reasons, all of the comments and recommendations from the participants in the planning process were included in one or more of the management alternatives.

With alternative themes defined, resource specialists from the BLM and the cooperating agencies developed specific objectives and actions for their area of expertise. The BLM planning team and cooperating agencies worked closely together to develop the alternatives, to carefully review the alternatives to ensure consistency

within each alternative management scenario, and to identify any potential conflicts among resource prescriptions that might occur within the alternatives.

Visitor usage of the North McCullough Range was low before the designation of the Sloan Canyon NCA and North McCullough Wilderness Area. Due to rapid growth in the Las Vegas Valley, an increase in visitors is expected. To respond to any impact from such an increase in visitors the alternatives and management actions contain flexibility to adjust future management approaches. This flexibility will also allow for adjustments in response to unforeseen pressures from use or resource conflicts.

2.2 OVERVIEW OF THE ALTERNATIVES

The following section provides an overview of the Alternative themes.

2.2.1 Alternative A: No Action

The No Action Alternative is required by the NEPA to provide a baseline for comparison of impacts of the other alternatives. The No Action Alternative is a continuation of current management and is based on available inventory data, existing planning decisions and policies, and existing land use allocations and programs. The current management was analyzed in detail in the Management Situation Analysis (BLM 2003b) and includes direction and decisions contained in the *Las Vegas RMP* (BLM 1998a); all existing laws, regulations, and policy; the Wilderness Act of 1964; and the specific mandates that established the NCA and North McCullough Wilderness Area.

The *Las Vegas RMP* (BLM 1998a) provides the overarching guidance for managing BLM lands in southern Nevada, while the Sloan Canyon NCA Act and Clark County Act, Title II ("Wilderness Areas") offer specific direction to BLM for managing the NCA and the Wilderness. Thus, the No Action Alternative includes the recent Congressionally-mandated management requirements. For example, per the *Las Vegas RMP*, mining would be allowed in the North McCullough Range, outside of the North McCullough Wilderness Study Area; however, the Sloan Canyon NCA Act prohibits new mining claims within the NCA although valid, existing mineral rights are recognized. Any future revisions to the existing management practices would be made for the sole purpose of ensuring compliance with any changes in mandates such as laws, regulations, or the listing of new threatened and endangered species.

2.2.2 Alternative B: Emphasize Natural Character

Alternative B emphasizes the natural character of the NCA and represents, in general, the most "hands-off" management approach while being the most resource protective. Developed recreation, such as designated trails, would be minimized, and opportunities for solitude and wilderness-type experiences would be maximized. Visits to the Sloan Canyon Petroglyph Site would be permitted only by guided tour. All existing roads and trails would be closed to the public for motorized use.

2.2.3 Alternative C: Allow Moderate Developed Use While Maintaining Natural Character

Alternative C focuses on a moderate increase in development while maintaining the natural characteristics of the NCA. Recreational opportunities such as hiking, mountain biking, equestrian use, and dispersed camping would be provided, and a requirement to remain on designated trails in certain areas would be established. The Sloan Canyon Petroglyph Site would be accessed mainly from a multipurpose visitor center at the north end of Sloan Canyon, and guided tours would be required during heavy visitation periods. Most existing roads and trails would be closed to the public for motorized use.

2.2.4 Alternative D: Emphasize Developed Uses

Alternative D takes a more active management approach, allowing maximum use while still maintaining and enhancing resource conditions. This alternative emphasizes developed uses of the NCA and includes the greatest opportunity for recreational diversity. Off-highway vehicle (OHV) use would be authorized on designated trails and opportunities for hiking, mountain biking, equestrian use, and camping would be maximized. The Sloan Canyon Petroglyph Site could be accessed from a multipurpose visitor center at the north end of Sloan Canyon or a visitor contact station at the Hidden Valley Trailhead on a self-guided basis. Guided tours would be offered upon request. A system of existing roads and trails would be open to the public for motorized use.

2.2.5 The Preferred Alternative

The preferred alternative was selected from a range of reasonable options and represents an effort to provide balance in managing both resources and uses within the Sloan Canyon NCA. The criteria considered in selecting the preferred alternative included environmental impacts of the alternatives; issues raised through the planning process; public and cooperating agency input; the spirit and intent of the Clark County Act; the NEPA; and the *BLM Land Use Planning Handbook* (H-1601-1). Alternative C is the preferred alternative for all resources because it provides for moderate levels of developed recreation, facilities, and transportation with management actions to ensure that neither resources nor visitor experiences are unacceptably degraded.

The Sloan Canyon NCA Act directed BLM to grant the City of Henderson a Right-of-Way (ROW) for the North McCullough Road (N-65874), which is envisioned to be a scenic roadway constructed to provide access to the NCA, trailheads, and overlook points. The act requires BLM to recommend a location for the North McCullough Road as part of this planning process. Based on ground surveys, field visits, impact assessments, and extensive dialogue with City of Henderson planners and engineers, BLM recommends the proposed Northern Corridor as the location for North McCullough Road.

2.3 MANAGEMENT EMPHASIS AREAS

Management Emphasis Areas (MEA) provide a framework for identifying BLM's management intent for a particular geographic area and for evaluating future actions and proposals. By assigning appropriate MEA categories to all portions of the NCA, future actions can be considered that have not been specifically addressed in this plan. This will help ensure that the RMP remains flexible and current over time.

Using a modification of the Recreation Opportunity Spectrum (ROS) method of planning and a Level 1 inventory, which was completed due to low visitation and anticipated changes, the NCA was divided into five MEA zones, with geographic areas varying per alternative. Each MEA zone has a set of objectives that describe the physical, social, and managerial setting of the area and provide standards for future management. To provide for a positive visitor experience, any future actions or improvements within a zone must be consistent with the established guidelines and expectations.

2.3.1 Management Emphasis Area Zone Objectives

Primitive

- Includes remote areas not on primary travel routes or easily accessed.
- Access is by hiking and horseback; no mechanized vehicles (including mountain bikes) are allowed.
- Human interaction is rare to low; evidence of other uses is minimal.
- No onsite controls or improvements provided except those required for resource protection.
- More visitor risk is assumed; self-reliance is necessary.

Semi-Primitive; Non-Motorized

- Areas may not necessarily be remote and access may be easy, but human interaction is low.
- Motorized use is prohibited; existing roads would be closed and could be converted to trails.
- Opportunities provided could include mountain bike, equestrian, and hiking trails.
- Offsite controls preferred.
- Construction of facilities would be avoided except where they provide resource protection or aid in visitor safety.

Roaded Natural

- The recreational experience is based on the natural setting.
- Human interaction is low to moderate, but more often on the low side.
- Includes areas with roads.
- Developments limited to improved access and those consistent with the natural environment.

- Opportunities provided may include roads, trails, and camping sites (new improvements for resource protection only).
- Onsite controls present but subtle.

Roaded Developed

- Recreation activities rely on and are consistent with the natural environment.
- Human interaction level moderate to high in more developed portions and low to moderate elsewhere.
- May include paved roads and buildings, but the design should blend with the natural environment.
- Onsite controls, facilities, and law enforcement noticeable.

Developed

- Substantial modification of the natural environment.
- Human interaction level moderate to high.
- Motorized use and parking available.
- Onsite controls obvious and facilities widely available.
- Law enforcement moderately visible.

2.4 RESOURCE GOALS AND OBJECTIVES

The NCA planning process included the development of broad goals and associated objectives to ensure that the completed RMP is consistent with the spirit and intent of the Sloan Canyon NCA Act, the Clark County Act, Title II ("Wilderness Areas"), and other laws, regulations, and policy. The identified goals and objectives listed below by resource area were developed based on the efforts of the planning team, discussions with cooperating agencies, scoping comments, laws and regulations, and other BLM direction.

2.4.1 Recreation

Goal: Provide recreation opportunities within the NCA, including the North McCullough Wilderness Area, consistent with the Sloan Canyon NCA Act and the Clark County Act, Title II ("Wilderness Areas").

Objectives:

- Provide an array of outdoor recreation opportunities and experiences within the NCA.
- Manage recreation uses so that recreation-related disturbances are minimized.

2.4.2 North McCullough Wilderness Area

Goals:

- To provide for the long-term protection and preservation of the area's wilderness character under a principle of nondegradation. The area's natural condition, opportunities for solitude, opportunities for primitive and unconfined types of recreation, and any ecological, geological, or other features of scientific, educational, scenic, or historical value present will be managed so that they remain unimpaired.

- To manage the wilderness area for the use and enjoyment of visitors in a manner that will leave the area unimpaired for future use and enjoyment as wilderness. The wilderness resource will be dominant in all management decisions where a choice must be made between preservation of wilderness and visitor use.

- To manage the area using the minimum tool, equipment, or structure necessary to successfully, safely, and economically accomplish the objective, the chosen tool, equipment, or structure should be the one that least degrades wilderness values temporarily or permanently. Management will seek to preserve spontaneity of use and as much freedom from regulation as possible.

- To manage nonconforming but accepted uses permitted by the Wilderness Act and subsequent laws in a manner that will prevent unnecessary or undue degradation of the area's wilderness character.

Objectives:

- Maintain or improve solitude within the Wilderness.
- Maintain or improve naturalness in the Wilderness to achieve a standard of no known surface disturbances and stable or decreasing non-native plant populations.
- Provide a diversity of opportunities for primitive and unconfined recreation.

2.4.3 Cultural Resources

Goals:

- Identify and protect cultural resources and ensure that they are available for the benefit of present and future generations.
- Reduce imminent threats from natural or human-caused deterioration, or potential conflict with other resource uses.
- Actively pursue opportunities for scientific research to understand and interpret human use of the NCA and surrounding region.
- Provide for traditional tribal use of the Sloan Canyon Petroglyph Site.

Objectives:

- Develop educational and interpretive outreach programs to help prevent cultural resources from being disturbed or damaged.
- Interpret the history and prehistory of the NCA to help instill an appreciation for past and current cultures and the values that living cultures associate with the resources of the NCA.
- Develop cooperative efforts with educational institutions, students, Tribes, and others for scientific studies, educational opportunities, and enhanced management of the NCA's cultural resources.
- Continue good working relationships with interested Native American tribes.

2.4.4 Special Designations—Areas of Critical Environmental Concern (ACEC)

Goal: Protect areas with relevant and important cultural, natural, or geological values.

Objective: Develop management prescriptions to protect the important values of the NCA.

2.4.5 Visual Resources

Goal: Manage all activities in a manner that conserves, protects, and enhances the NCA's scenic resources.

Objective: Manage activities within the NCA to adhere to the Visual Resource Management (VRM) class objectives.

2.4.6 Interpretation

Goal: Provide opportunities for users, both onsite and offsite, to develop an appreciation of the NCA's resources through informational and inspiring interpretative experiences.

Objectives:

- Provide a variety of opportunities for education, accurate information, and interpretation that meets the user's needs (e.g., tours, kiosks, brochures, virtual tours, Web site, libraries, community outreach, etc.).
- Provide visitors with information on traditional uses that would be developed with interested tribes.
- Provide interpretation that promotes stewardship behavior in users so they would act in a way that minimizes impacts to the NCA's resources.
- Provide information, guidance, and regulations for visits and orientation to facilities.
- Increase public awareness of management goals for the NCA.

2.4.7 Facilities

Goal: Enhance visitor use and experience by providing appropriate facilities compatible with the character and characteristics of the NCA's resources.

Objectives:

- Provide appropriate access points with relevant interpretive opportunities, signage, mapping, and information specific to that area.
- Provide appropriate facilities and/or infrastructure to support management of the NCA.

2.4.8 Lands and Realty

Goal: Manage lands and realty actions within the NCA in accordance with the Sloan Canyon NCA Act and the Clark County Act, Title II ("Wilderness Areas").

Objective: Allow only development and establishment of new interests within the NCA that are consistent with the intent of the Sloan Canyon NCA Act.

2.4.9 Transportation (Licensed Motorized Vehicles)

Goal: Provide public and administrative access to the NCA.

Objective: Provide and maintain a system of roads and routes for licensed motorized vehicles within the NCA but outside the North McCullough Wilderness Area.

2.4.10 Vegetation Management (Including Special Status Species)

Goals:

- Manage the NCA to maintain or improve the condition of native vegetation to achieve a potential natural community when consistent with other goals and objectives for the NCA.
- Establish an integrated weed management program by cooperating with State and county weed programs and building cooperative weed management areas to implement the goals of the initiative, *Partners Against Weeds – An Action Plan for the BLM* (BLM 1996).

Objectives:

- Manage to protect priority plant species and habitats, including federally listed, State sensitive, and *Clark County Multiple Species Habitat Conservation Plan* (MSHCP) (Clark County Department of Comprehensive Planning 2000) species within the NCA.

- Place a priority on the use of native plant species for vegetation restoration and landscaping developed areas.

- Protect the natural condition and biodiversity of the NCA by preventing or limiting the spread of noxious and invasive weeds that displace native vegetation through integrated weed management principals to detect and eradicate all existing infestations, eliminating new infestations before they begin to spread, and preventing or limiting the spread of established weeds into areas containing little or no infestations.

- Prevent the increase of the total acres dominated by invasive annual species within the NCA.

2.4.11 Wildlife Management (Including Special Status Species)

Goal: Maintain and enhance native wildlife resources and provide for biological diversity of wildlife resources while ensuring healthy ecosystems.

Objectives:

- Manage to protect Special Status Wildlife Species and habitats in the NCA, including federally listed, State-sensitive, and Clark County MSHCP species, according to existing law, regulation, policy, and/or agreement.

- Maintain or enhance habitat quality and quantity to adequately support the life history requirements of a diversity of wildlife species.

- Promote healthy and viable wildlife populations through appropriate habitat and species management actions that would lead to providing for ecological integrity within the NCA.

- Protect important migratory bird habitat according to existing law, regulation, policy, and/or agreement.

- Maintain lambing areas and movement corridors for bighorn sheep.

2.4.12 Wildland Fire Management

Goals:

- Manage fire to protect human health and property.
- Manage fire to keep wildfire size to an absolute minimum in order to prevent conversion to red brome and other non-native grasses.

Objective: Protect human health and property.

2.4.13 Water Resources and Quality

Goal: Ensure NCA activities protect water resources and quality.

Objectives:

- Manage and protect springs and water sources within the NCA.
- Maintain or improve the water quality within the NCA

2.4.14 Air Quality

Goal/Objective: Ensure that emissions associated with NCA activities meet Federal, State, and local air quality regulations and standards.

2.4.15 Livestock Grazing

Goal: Manage authorized livestock grazing consistent with the purposes of the Sloan Canyon NCA Act and the Clark County Act, Title II ("Wilderness Areas").

Objective: Manage livestock grazing in the Sloan Canyon NCA to attain the Standards – desired rangeland conditions, expressions of physical and biological conditions required for sustaining rangelands for multiple uses, approved in Nevada's *Mojave-Southern Great Basin Resource Advisory Council (RAC), Standards and Guidelines for Rangeland Health and Guidelines for Grazing Administration* (BLM 1997) (Appendix B).

2.4.16 Geology and Soils

Goals:

- Conserve and protect geological and soil resources within the NCA.

- Provide opportunities for scientific research within the NCA to understand and interpret the NCA's geologic history.

Objective: Manage activities within the NCA to maintain natural rates of soil loss and sedimentation.

2.4.17 Minerals

Goal/Objective: Recognize valid, existing mineral rights in accordance with existing law, regulation, and policy.

2.4.18 Abandoned Mines

Goal/Objective: Reduce potential safety hazards associated with abandoned mines.

2.4.19 Hazardous Materials

Goal: Reduce potential for hazardous materials contamination within the NCA.

Objectives:

- Prevent illegal disposal of hazardous materials.
- Ensure that NCA management actions are designed to minimize hazardous waste generation and prevent pollution.
- Assess the impacts of released hazardous materials and determine the appropriate response, removal, and remedial actions.

2.5 MANAGEMENT DIRECTION COMMON TO ALL ALTERNATIVES

This section describes the management direction that applies to all of the alternatives within a specific resource, including the No Action Alternative. These management actions would be implemented regardless of which decisions are eventually included in the Final RMP. For presentation simplicity, these decisions are organized below by resource. There are no directions common to all alternatives for the following resources: water resources and quality, air quality, geology and soils, minerals, and hazardous materials.

2.5.1 Recreation (Common To All Alternatives)

Recreational use of the NCA has historically been at low to moderate levels, and future actions by both the BLM and the surrounding communities would contribute to the kinds of recreational opportunities available at the NCA. To be flexible and responsive to increased user demands, recreation would be managed for experiences and beneficial outcomes based on the ROS for the No Action Alternative and MEA zone

objectives described in Section 2.3 for Alternatives B, C, and D. The character of the management zones ranges from Primitive to Developed in terms of their physical, social, and administrative attributes, and these attributes define the character of the respective recreation opportunities (e.g., activities available).

Because use of the NCA will likely change dramatically over the coming years, the alternatives contain flexible management guidance, which would be refined into specific management criteria based on use and resource monitoring. Visitation and resource monitoring would be used to establish and assess the NCA's baseline resource conditions and document any changes to them (Appendix C, Recreation Monitoring Plan). Once the resource baselines are determined, a system such as Limits of Acceptable Change (LAC) could be used to establish thresholds for future actions.

Throughout this plan, the term "OHV" refers to any motorized vehicle capable of operating on roads, trails, or other areas that are not maintained. These vehicles are not required to be street licensed and include motorcycles, all-terrain vehicles (ATV), dune buggies, and four-wheel drive vehicles. All motorized travel, which includes licensed motorized vehicles and OHVs, would be limited to designated roads, routes, and trails.

Various recreational uses that could occur within the NCA require a special recreation permit (SRP). SRPs would be issued consistent with the purposes of the NCA and Wilderness to disperse visitor use, protect natural resources, provide for the health and safety of visitors, and provide a fair return to the government for the opportunity to make a profit for the commercial recreational use of public lands. Activities requiring an SRP include commercial use, competitive use, vending, and organized group activity and event use.

Commercial Use involves an individual or organizations providing recreational opportunities that are business related or involve financial gain. Hunting outfitters and guides would be required to obtain an SRP by the Sloan Canyon NCA manager to operate within the NCA.

Competitive Use refers to events and activities that include an element of competition, such as a running race.

Vending permits are temporary authorizations to sell goods or services on public lands and are usually in conjunction with a recreation activity.

Organized Group Activity and Event Use may require an SRP, even if not commercial or competitive in nature. The BLM Authorizing Officer determines when an SRP would be needed based on resource concerns, user conflicts, public health and safety, and other factors.

SRPs would be issued at the discretion of the BLM Authorizing Officer, who may at any time and without prior notice, choose not to issue permits for certain activities or use areas. Such decisions could be based on a variety of factors such as planning decisions, potential resource impacts, existing outfitters in the same area, overcrowding, past poor performance, and other concerns. Ongoing evaluations of the number,

appropriateness, and impacts of SRPs would be conducted, and issuance limits would be considered based on these evaluations.

Use fees could be charged in specific areas with the NCA. Specific fee guidelines and amounts would be determined at a later time consistent with nearby State and Federal facilities.

Permits for overnight parking to support activities such as camping and night hiking would be required and would be issued in accordance with NCA policy, which would be developed in the future.

Interpretive information and materials pertaining to the NCA's unique cultural and natural resources would be provided to visitors to enhance their recreational experiences.

No animal, other than a horse, burro, or mule, may be used in the NCA for the purpose of transporting people or their possessions. Only forage or feed supplements that are free of noxious weed seeds would be permitted in the NCA.

2.5.2 North McCullough Wilderness Area (Common To All Alternatives)

Because the North McCullough Wilderness Area is close to the Las Vegas Valley, its management is intended to be flexible and responsive as use amounts and patterns are established. Monitoring would be used to establish and assess the Wilderness' baseline conditions and document any changes to them. Once the resource baselines are determined, a system such as LAC could be used to establish thresholds for future actions. Visitation could be monitored using techniques such as contacts with visitors, social surveys conducted at Wilderness access points, and trailhead register data.

The airspace above the Sloan Canyon NCA and Wilderness is controlled by the Federal Aviation Administration. Neither the Sloan Canyon NCA Act nor the Clark County Act, Title II ("Wilderness Areas") restricts aircraft overflights. In fact, Title II, section 205 states that military overflights are unrestricted and nothing precludes low-level military overflights of the Wilderness, flight testing and evaluation, and designation or creation of new units of special use airspace or establishment of training routes. All BLM-administered Wilderness overflights would be conducted to minimize impacts to wilderness characteristics. These overflights would most likely be for wilderness monitoring purposes, such as checking for new disturbances.

Commercial SRPs would be issued in the Wilderness on a case-by-case basis; however, no competitive or vending SRPs would be issued in the Wilderness.

Access to the North McCullough Slickrock Catchment #1 (Maintenance Project #4916) would be managed in accordance with the Memorandum of Understanding (MOU) with the Nevada Department of Wildlife

(NDOW) and an environmental assessment written for its installment. No motorized access to this catchment would be permitted.

2.5.3 Cultural Resources (Common To All Alternatives)

All proposed actions within the NCA would be subject to compliance with Section 106 of National Historic Preservation Act in accordance with the Nevada BLM/State Historic Preservation Office (SHPO) Protocol, Archaeological Resource Protection Act, Native American Graves Protection and Repatriation Act, and other appropriate mandates. In accordance with the American Indian Religious Freedom Act, BLM would ensure that policies enacted under this plan will not inadvertently impair the ability of Native Americans to access the Sloan Canyon Petroglyph Site for traditional cultural purposes.

All physical contact with petroglyphs, such as touching, chalking, and making impressions through rubbings or casting would be prohibited except for traditional cultural purposes. Scientific research may be allowed under permit.

Appendix D contains key elements for management of cultural resources during the first stage of implementation under all alternatives of a RMP. The key elements are—

- A cultural context and relevant research questions for archaeological and ethnographic work that may be conducted in early stages of developing the NCA
- A treatment protocol to be implemented in the event that Native American human remains are discovered
- A monitoring plan to establish baseline data and track effects on cultural resources as public use of the NCA grows.

Cultural resources within the NCA would be managed based on use categories, as defined below.

Scientific Use — This category applies to any cultural property determined to be available for consideration as the subject of scientific or historical study at the present time, using currently available research techniques. Study includes methods that would result in the property's physical alteration or destruction. This category applies almost entirely to prehistoric and historic archaeological properties, where the method of use is generally archaeological excavation, controlled surface collection, and/or controlled recordation (data recovery). Recommendations to allocate individual properties to this use must be based on documentation of the kinds of data the property is thought to contain and the data's importance for pursuing specified research topics. Properties in this category need not be conserved in the face of a research or data recovery (mitigation) proposal that would make adequate and appropriate use of the property's research importance.

Public Use — This category may be applied to any cultural property found to be appropriate for use as an interpretive exhibit in place, or for related educational and recreational uses by members of the general public.

Traditional Use — This category is to be applied to any cultural resource known to be perceived by a specified social and/or cultural group as important in maintaining the cultural identity, heritage, or well being of the group. Cultural properties assigned to this category are to be managed in ways that recognize the importance ascribed to them and seek to accommodate their continuing traditional use.

Conservation for Future Use — This category is reserved for any unusual cultural property, which, because of scarcity, a research potential that surpasses the current state of the art, singular historic importance, cultural importance, architectural interest, or comparable reasons is not currently available for consideration as the subject of scientific or historical study that would result in its physical alteration. A cultural property included in this category is deemed worthy of segregation from all other land or resource uses, including cultural resource uses, that would threaten the maintenance of its present condition or setting, as pertinent, and will remain in this use category until specified provisions are met in the future.

2.5.4 Visual Resources (Common To All Alternatives)

Signage, structures, and facilities would be designed in accordance with applicable VRM objectives.

2.5.5 Interpretation (Common To All Alternatives)

Based, in part, on the Interpretive Strategy developed as part of this planning process (Appendix E), a Comprehensive Interpretive Plan would be developed for the NCA. As encouraged in the Interpretive Strategy, partnerships would be developed with Tribes, cooperating agencies, not-for-profit organizations, and volunteer organizations when conducting interpretation, outreach, education, and facility planning.

A program would be implemented to remove litter from the NCA and to prevent future dumping through education and enforcement. The program could include concepts such as developing partnerships with Federal, State, and local agencies; increasing volunteer involvement; preparing educational material; and increasing enforcement. As required by the Sloan Canyon NCA Act, this Draft RMP/EIS contains a Litter Cleanup Plan and Public Lands Awareness Campaign (Appendix F).

2.5.6 Lands and Realty (Common To All Alternatives)

In accordance with the Sloan Canyon NCA Act, all existing rights at the time of passage of the Clark County Act (November 6, 2002) are recognized. The North McCullough Wilderness Area, which includes the Sloan Canyon Petroglyph Site, is an exclusion area for all types of ROWs. Existing communication ROWs may be renewed at the end of their term in accordance with the Black Mountain Communication Site Plan (Appendix G) and current regulations and may be updated or modified to meet the intent of the Sloan Canyon NCA Act. No new communication sites will be authorized under the Sloan Canyon NCA Act. Other valid existing ROW grants may also be renewed at the end of the term and modified to meet the intent of the Sloan Canyon NCA Act and current regulations. If a subleasing right, such as one for fiber optics, existed as of

November 6, 2002, that right continues. New ROWs or amendments to existing ROWs would be considered on a case-by-case basis and authorized only if they serve the purposes of the NCA.

Except for commercial filming, special use permits (2920 Permits) would be allowed if they meet the intent of the Sloan Canyon NCA Act. Special Use Permits are issued for purposes such as temporary or permanent facilities for commercial purposes and construction equipment storage sites (43 CFR 2920). Commercial film permitting actions vary per alternative and involve either still or motion photography for profit or financial gain.

2.5.7 North McCullough Road (Common To All Alternatives)

In September 2002, the City of Henderson submitted an application to construct a trail and scenic roadway through the area now designated as the Sloan Canyon NCA (ROW N-65874). The Sloan Canyon NCA Act required the BLM to grant the ROW to the City of Henderson within 180 days of NCA designation and to make a recommendation for the road, unofficially named the North McCullough Road, in the NCA management plan. In May 2003, BLM partially issued the ROW, recognizing that the recommendation for the road location would be developed as part of this RMP process. Once the recommendation is finalized through the ROD, the City of Henderson will identify a specific alignment and amend ROW application N-65874 to include road design details and visitor facilities such as parking areas. Additional environmental reviews would be required for this detailed planning.

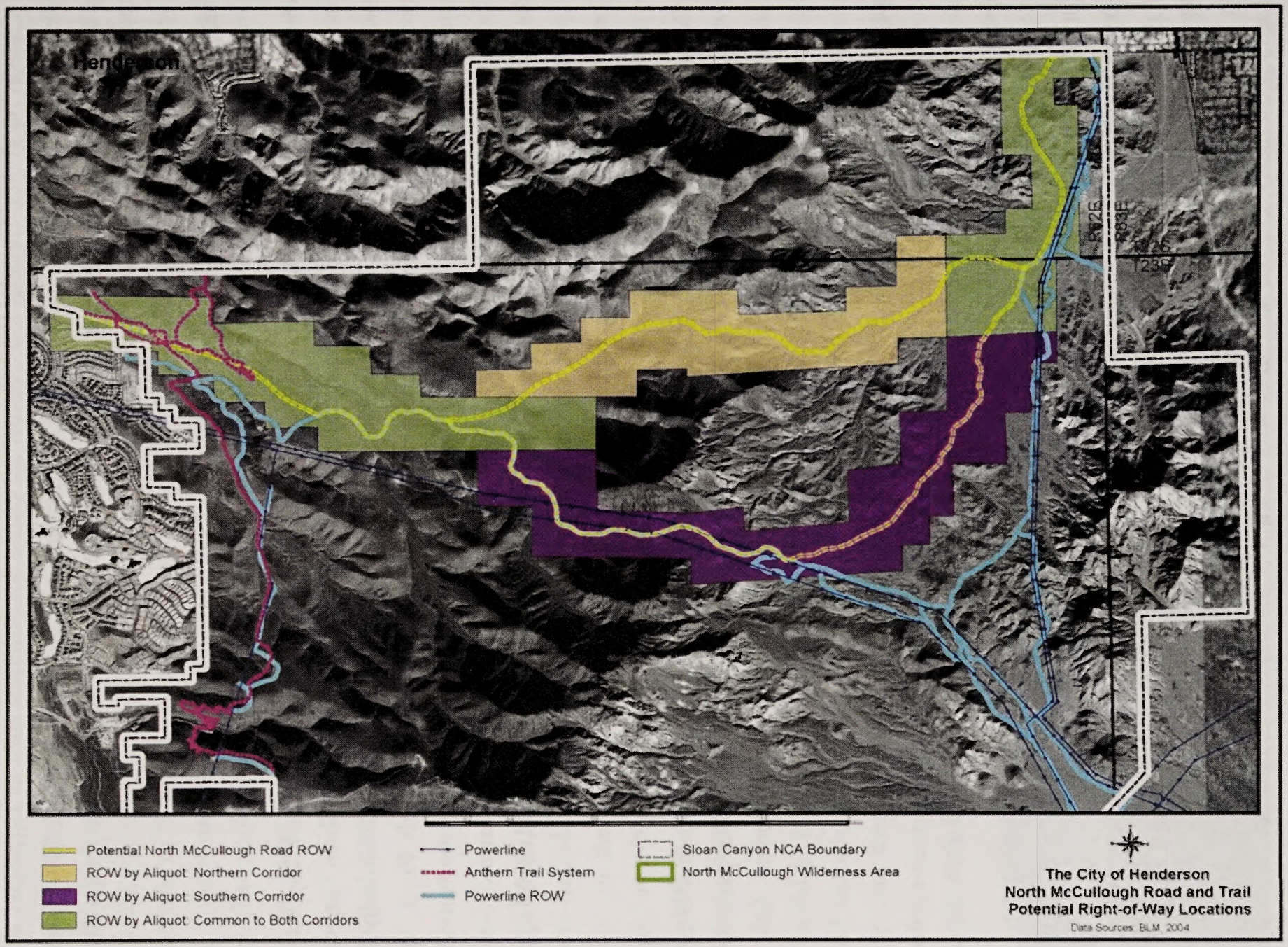
ROW application N-65874 contains two proposed corridors for the location of the North McCullough Road and Trail: the Northern Corridor and the Southern Corridor (Figure 2.1). For analysis purposes, potential roadway alignments within each corridor have been designated based on numerous field visits and topography evaluation.

Northern Corridor

The Northern Corridor enters the NCA from the east along Foothills Drive and then turns south for approximately 1 mile. The corridor then turns west and follows a major wash for roughly 1.5 miles until it crests the first saddle. After the first saddle, the alignment drops into a widened valley to crest another two hills. The alignment within the corridor was chosen to reduce the cut and fill required to maintain a reasonable grade along the roadway. After the third crest, the corridor follows an existing roadway for approximately .5 miles and then runs along a ridge with existing transmission poles for another 1.5 miles into the Anthem Community adjacent to the Del E. Webb Middle School.



Figure 2.1. The City of Henderson North McCullough Road and Trail Potential Right-of-Way Locations



Southern Corridor



The Southern Corridor enters the NCA in the same location as the Northern Corridor, and both follow the same north-south alignment for approximately 1.5 miles until the two corridors split. The Southern Corridor continues through a highly braided flood plain nearly 2 miles until it aligns with an existing power line road. The road then follows the power line road for 1 mile up a steep grade of nearly 12 percent It then crests the saddle to continue down a steep grade within a major wash for 2 miles and merges with the Northern Corridor. From this point, it too runs on the existing power line road for about .5 miles then runs along a ridge with transmission poles for another 1.5 miles into Anthem Community adjacent to the Del E. Webb Middle School.

Conceptual Design

For analysis purposes, conceptual designs have been prepared for both alignments to equal levels. The design efforts included generating horizontal and vertical alignments, developing typical cross sections, establishing cut/fill limits and quantities, calculating potential disturbed area, and identifying major drainage crossings.

2.5.8 Transportation (Licensed Motorized Vehicles [Common To All Alternatives])

All roads and routes not designated for public use would be physically barricaded or restored to natural conditions. BLM, or its designee, may use any existing road, route, or trail outside the Wilderness for administrative or emergency purposes. Motorized vehicles could be authorized for installing, maintaining, and reconstructing water development projects outside the Wilderness, including guzzlers, that would enhance the NCA by promoting healthy, viable, and more naturally distributed wildlife populations, subject to existing laws, regulations, policies, plans, or agreements.

2.5.9 Vegetation Management (Including Special Status Species [Common To All Alternatives])

BLM would continue ongoing efforts to survey, monitor, and manage invasive and noxious weeds using integrated weed management principals. This includes working with local organizations, agencies, and landowners to promote education and assist in managing weeds. The collection of vegetation for scientific purposes would be authorized on a case-by-case basis.

2.5.10 Wildlife Management (Including Special Status Species [Common To All Alternatives])

BLM would work cooperatively with NDOW and the U.S. Department of Agriculture Animal and Plant Health Inspection Service/Wildlife Services in the management of wildlife (including Special Status and Sensitive Species, hunting, and trapping), recognizing their respective management jurisdictions. Specifically, BLM would coordinate with NDOW on providing habitat for maintenance of population objectives and management activities designed to moderate populations (e.g., hunting, trapping, and transfer). For example, BLM would manage bighorn sheep habitat to promote healthy and viable populations consistent with the *Rangewide Plan for Managing Bighorn Sheep Habitat on Public Lands* (BLM 1998b). BLM would also follow the objectives of the *Clark County MSHCP* (Clark County Department of Comprehensive Planning 2000) to maintain or improve current and potential wildlife habitat towards full ecological potential. In addition, BLM has developed a Biological Management Strategy (Appendix H) to guide the research and monitoring of wildlife species found within the NCA.

Within the North McCullough Wilderness Area, BLM would follow its MOU with NDOW for wildlife management in the Wilderness (BLM 2003c) or other applicable agreement policy. BLM would enhance wilderness values by maintaining existing water developments to promote healthy, viable, and more naturally distributed wildlife populations; constructing additional water developments, if appropriate; and protecting or improving springs and seeps consistent with the MOU and applicable laws and regulations. (See Appendix A.) The construction and maintenance of wildlife water developments would be consistent with the intent of the Clark County Act, Title II ("Wilderness Areas"), and the Wilderness Act of 1964. A ¼ -mile avoidance area for recreation developments, including trails, would be established to protect artificial and natural waters that provide benefit to wildlife. BLM would also prohibit livestock watering at wildlife water developments.

BLM would allow animal damage control activities, if necessary, on a temporary basis, for the successful re-establishment of native species, for the recovery of decimated populations, and to manage urban interface wildlife conflicts.

2.5.11 Wildland Fire Management (Common To All Alternatives)

Using the appropriate management response, BLM would provide wildland fire suppression efforts commensurate with resources and risk to adjacent property values. Education, law enforcement, and public outreach would be used to prevent or minimize risk of human-caused fires. Maximum fire protection would be provided through a comprehensive fire detection system using a multi-agency approach. An NCA staff resource advisor would be consulted on all fires in the NCA. For specific fire suppression guidance, the BLM would follow the *Fire Management Plan* (BLM 2004h).

2.5.12 Livestock Grazing (Common To All Alternatives)

If on-the-ground evaluations determine that forage is available, BLM would allow livestock grazing in the Hidden Valley Allotment, consistent with allotment-specific objectives. Grazing in the allotment would continue unless the permittee voluntarily relinquishes the privilege, permits, or leases, in which case the allotment would be closed to further livestock grazing. Cattle are the only class of livestock authorized to graze on the Hidden Valley Allotment. Horses may be kept in corrals and used to perform ranch-related work.

BLM would manage the range resource consistent with the phenological and physiological requirements of key perennial species. Livestock grazing management would provide for increased plant vigor and reproductive capability of perennial forage to either maintain a static trend or achieve an upward trend of key perennial forage.

2.5.13 Abandoned Mines (Common To All Alternatives)

BLM would ensure that abandoned mine hazards are considered during planning, design, and construction of NCA facilities. When consistent with other resource objectives, abandoned mines would be closed.

2.6 Alternative A: No Action

The No Action Alternative reflects the existing management prescriptions provided by the *Las Vegas RMP* (BLM 1998a), existing laws, regulations, and guidelines, plus directives specifically established for the NCA and Wilderness through the Sloan Canyon NCA Act and the Clark County Act, Title II ("Wilderness Areas").

2.6.1 Recreation Opportunity Spectrum (No Action)

Under the No Action Alternative, recreation would continue to be managed according to the ROS classes designated through the *Las Vegas RMP* (BLM 1998a). The ROS is BLM's framework to inventory, plan, and manage recreational opportunities. The North McCullough Wilderness Area would be designated as a Primitive zone to meet the intent of the Sloan Canyon NCA Act, the Clark County Act, Title II ("Wilderness Areas"). The ROS classes would be designated as shown on the ROS No Action Alternative Map (Figure 2.2).

2.6.2 Recreation (No Action)

To be flexible and responsive to probable increases in user demands, recreation would be managed for experiences and beneficial outcomes based on the description of the ROS classes designated through the *Las Vegas RMP* (BLM 1998a). The character of the classes ranges from Primitive to Developed in terms of their physical, social, and administrative attributes, and these attributes would define the character of the respective recreation opportunities (e.g., activities available).

Figure 2.2. Recreation Opportunity Spectrum (No Action Alternative)



Because use of the NCA will likely change dramatically over the coming years, the No Action Alternative contains flexible management guidance, which would be refined into specific management criteria based on use and resource monitoring. Visitation and resource monitoring would be used to establish and assess the NCA's baseline resource conditions and document any changes to them (Appendix C, Recreation Monitoring Plan). Once the resource baselines are determined, a system such as LAC could be used to establish thresholds for future actions.

Recreation opportunities under the No Action Alternative would include hiking, equestrian use, mountain biking, and OHV use on designated trails or routes. Table 2.1 summarizes the No Action Alternative recreation management actions.

Table 2.1. Recreation Management—No Action Alternative

Activity	Allowed		Prohibited
	Must stay On Trails	Cross Country	
Hiking	100% of the NCA		None
Equestrian Use	100% of the NCA		None
Mountain Biking	70% of the NCA		North McCullough Wilderness Area
OHV Use (Figure 2.3)	None		100% of the NCA, unless roads and routes are designated
Camping/Campfires (Figure 2.4)	47% of the NCA		Existing Closed Area
Rock Climbing	100% of the NCA		None
Dogs	100% of the NCA		None
Geocaching	100% of the NCA		None
Recreational Target Shooting (Figure 2.4)	47% of the NCA		Existing Closed Area
Rockhounding	100% of the NCA		None

Hiking/Equestrian Use/Mountain Biking

Hiking, equestrian use, and mountain biking within the NCA would be managed in accordance with *Las Vegas RMP* (BLM 1998a), the Sloan Canyon NCA Act and the Clark County Act, Title II ("Wilderness Areas"). Hiking and equestrian use would be allowed throughout the NCA, while mountain biking would be allowed everywhere except inside the Wilderness.

Trails

Trails in the NCA would be designated, designed, constructed, maintained, and expanded on an as- needed, case-by-case basis. Trail development in sensitive natural or cultural resource areas, such as the Sloan Canyon Petroglyph Site, would be analyzed through site-specific NEPA analysis. Trail development and construction near wildlife water developments would be managed in the Wilderness according to the MOU with NDOW and outside the Wilderness in accordance with the *Las Vegas RMP* (BLM 1998a), the Sloan Canyon NCA Act, and the Clark County Act, Title II ("Wilderness Areas"). Any unauthorized trails, such as social trails, would be restored to natural conditions upon discovery. At this time, no existing trails have been designated within the NCA; however, the following new trails are proposed or under development:

Proposed Trails	Activities
Anthem Trail System (N-76312)	Hiking, mountain biking
North McCullough Trail (N-65874)	Hiking, equestrian use, mountain biking

OHV

The Sloan Canyon NCA Act allows the use of motorized vehicles only on designated roads and trails. Because no roads or routes are designated under the No Action Alternative, the NCA would be closed to OHV use (Figure 2.3).

Dogs

Dogs would be allowed off leash throughout the NCA unless unacceptable resource degradation occurs.

Nighttime Use

Camping and associated fires would be allowed within the NCA except for those areas closed to camping through the *Las Vegas RMP* (BLM 1998a) (Figure 2.4).

Other Recreation Use

Rock climbing, rockhounding, and geocaching would be allowed throughout the NCA unless unacceptable resource degradation occurs.

Figure 2.3. Off-Highway Vehicle Area Designation (No Action Alternative)

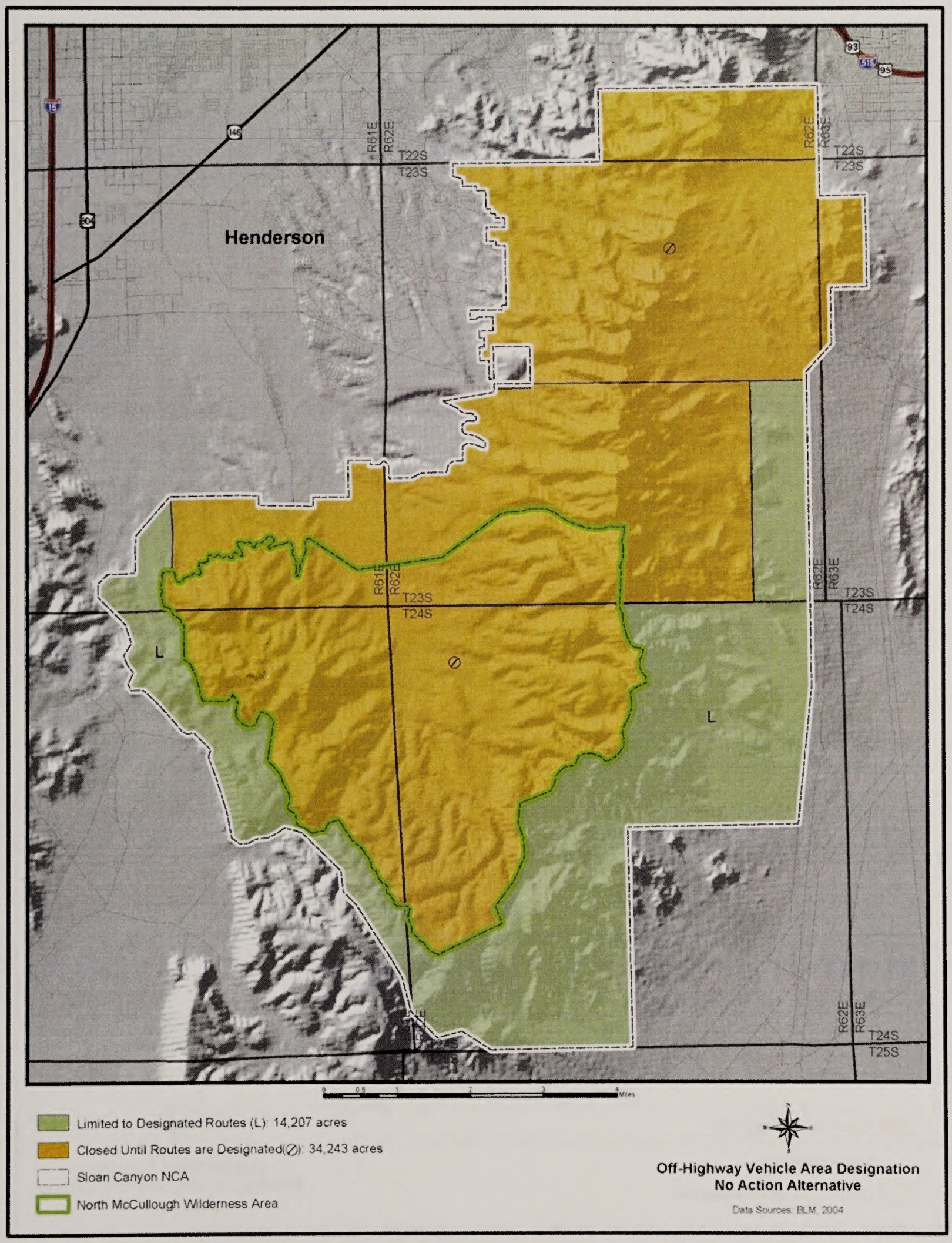


Figure 2.4 BLM Las Vegas Field Office Shooting, Camping, and OHV Closures



Recreational target shooting would be allowed outside of areas closed through the *Las Vegas RMP* (BLM 1998a) (Figure 2.4).

Special Recreational Permits

The SRPs would be managed to ensure regulatory compliance and would include the following policies:

Competitive Use: Competitive SRPs could be issued in the NCA, outside the Wilderness.

Vending: Vending SRPs could be issued in the NCA, outside the Wilderness.

Organized Group Activity and Event Use: Organized groups would be required to obtain an SRP on a case-by-case basis.

2.6.3 North McCullough Wilderness Area (No Action)

Under the No Action Alternative, a Wilderness Management Plan would be prepared as required by BLM Manual 8560 and 8561. A Draft Wilderness Management Plan is included in Appendix I, and it will be finalized based on the completed RMP. The Wilderness Management Plan will guide day-to-day activities within the Wilderness.

The management of the North McCullough Wilderness Area would be flexible and responsive while protecting wilderness characteristics and values. Monitoring would be used to establish and assess the Wilderness' baseline conditions and document any changes to them. Once the resource baselines are determined, a system such as LAC could be used to establish thresholds for future actions.

Visitation

Visitation would be monitored and managed to maintain wilderness characteristics such as solitude and naturalness.

Sloan Canyon Petroglyph Site Management

Under the No Action Alternative, visitors could continue to have self-guided tours to the Sloan Canyon Petroglyph Site, and there would be no restriction on visitation numbers, group size, or access. Management actions, such as additional law enforcement patrols, could be taken to protect resources from unacceptable degradation or to ensure compliance with the *Las Vegas RMP* (BLM 1998a) and the Sloan Canyon NCA Act. Table 2.2 summarizes the Sloan Canyon Petroglyph Site management actions for the No Action Alternative.

Table 2.2. Sloan Canyon Petroglyph Site Management Actions—No Action Alternative

	Northern Access	Southern Access
Approach	Sloan Canyon wash	Hidden Valley
Self Guided Tours	No restrictions	No restrictions

Recreation Management in the Wilderness

Cross-country hiking and equestrian use are allowed throughout the Wilderness.

Trails

Under the No Action Alternative, trails within the Wilderness would be designated, designed, constructed, and maintained on a case-by-case basis and a NEPA analysis would be required. Trail development in sensitive natural or cultural resource areas would be analyzed for potential impacts, and development near wildlife water developments would be managed to minimize impacts and to ensure regulatory compliance. Social trails would not be allowed to proliferate and any necessary restoration would be completed within 3 years of issuing the RMP ROD.

Dogs

Dogs would be allowed, off leash, throughout the Wilderness unless unacceptable resource degradation occurs.

Nighttime Use

Outside of the area closed to camping per the *Las Vegas RMP* (Figure 2.4), camping and associated campfires and other nighttime activities, such as stargazing, would be allowed in the Wilderness.

Other Recreation Use

Activities such as rock climbing (with permanent anchors but no power drills) and geocaching would be allowed in the Wilderness.

Wilderness Signage and Improvements

Actions regarding Wilderness boundary signage, trailhead access signage, visitor registers, and permanent improvements would be managed as appropriate, on a case-by-case basis and subject to existing BLM policy.

Permanent improvements, such as fences, could be allowed to protect wilderness characteristics. The improvements would be designed, accessed, and installed on a case-by-case basis and subject to a NEPA review.

Wilderness Disturbance Restoration

Vandalism, illegal dumping, and associated damage would be mitigated and disturbed areas restored to natural conditions. Noxious and invasive weeds would be managed in the Wilderness, as appropriate, on a case-by-case basis. Any restoration activities would be managed to ensure full regulatory compliance.

2.6.4 Cultural Resources (No Action)

Cultural resources would be managed under the Nevada BLM/SHPO Protocol for compliance with Section 106 of the Advisory Council on Historic Preservation regulations (36 CFR Part 800) and appropriate guidance when threatened by land disturbing activities (within limits prescribed by the Sloan Canyon NCA Act and the Clark County Act, Title II ("Wilderness Areas"). This approach would be used for the management of areas identified as having a high, medium, or low potential density of cultural resources sites (Duke et al 2004).

The *Las Vegas RMP* (BLM 1998a) would be implemented to manage rockshelters, rock art locales, prehistoric and historic remains, mining sites, and historic road/trail sites in areas that have or are likely to receive intensive recreational use for public use. These sites would be monitored and protected from disturbance and damage as appropriate. In the Wilderness, protection actions would be limited to those that enhance wilderness values. In areas not likely to receive intensive recreational use, rockshelters and rock art locales would be managed for conservation use.

The *Las Vegas RMP* (BLM 1998a) would be implemented to manage roasting pits, camp/open lithic scatters, rock features, and historic trash scatters for scientific uses. A representative sample of each of these site types would be managed for conservation use. In the Wilderness, protection actions would be limited to those that enhance wilderness values.

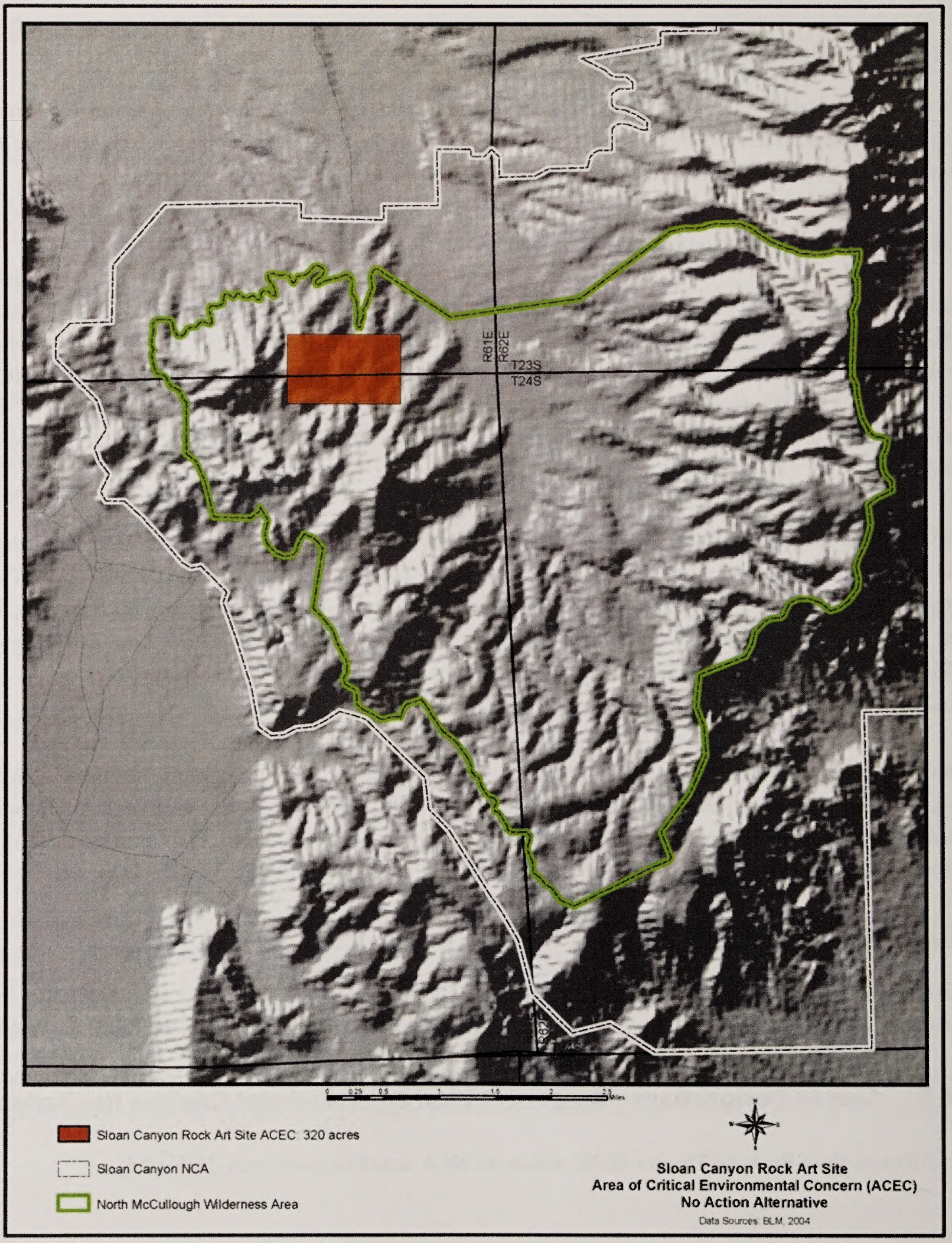
Sloan Canyon Petroglyph Site

Cultural resources within the Sloan Canyon Petroglyph National Register of Historic Places (NRHP) site would be managed per the *Las Vegas RMP* for conservation of its overriding scientific or historic importance.

2.6.5 Special Designations—Areas of Critical Environmental Concern (No Action)

The 320-acre Sloan Rock Art District ACEC within the NCA would be maintained (Figure 2.5).

Figure 2.5. Sloan Canyon Rock Art Site Area of Critical Environmental Concern (No Action Alternative)



2.6.6 Visual Resources (No Action)

VRM classes established in the *Las Vegas RMP* (BLM 1998a) would continue to apply to the NCA, except that the Wilderness would be a VRM Class I. According to the *Las Vegas RMP* (BLM 1998a), the VRM objective is to limit future impacts on the visual and aesthetic character of the public lands. VRM classes would be designated as shown on Figure 2.6, VRM Classes No Action Alternative Map, and as described in Appendix J, Visual Resource Management Class Description. The following VRM class definitions would be used:

- **VRM I:** Authorized actions may not modify existing landscape or attract the attention of casual viewers.
- **VRM II:** Authorized actions may not modify existing landscape or attract the attention of casual viewers.
- **VRM III:** Authorized actions may alter the existing landscape but not to the extent that they attract or focus attention of the casual viewer.
- **VRM IV:** Authorized actions may involve major modification of the landscape's existing character. Authorized actions may create significant landscape alterations and would be obvious to casual viewers.

2.6.7 Interpretation (No Action)

There are no management actions related to interpretation in the *Las Vegas RMP* (BLM 1998a) or the Sloan Canyon NCA Act.

2.6.8 Facilities (No Action)

No management actions were identified for this alternative because there are no existing facilities within the NCA.

2.6.9 Lands and Realty (No Action)

Applications for new linear or site-type ROWs, or any amendments to existing ROWs, would be considered on a case-by-case basis within the NCA, under FLPMA, if the action furthers the purpose of the NCA in Section 602 of the Sloan Canyon NCA Act (Figure 2.7).

Commercial film permits could be authorized within the NCA after an adequate NEPA analysis is completed. Visitors with cameras and recording devices, not for financial gain, would generally be exempt from the permit requirements.

Figure 2.6. Visual Resource Management Classes (No Action Alternative)

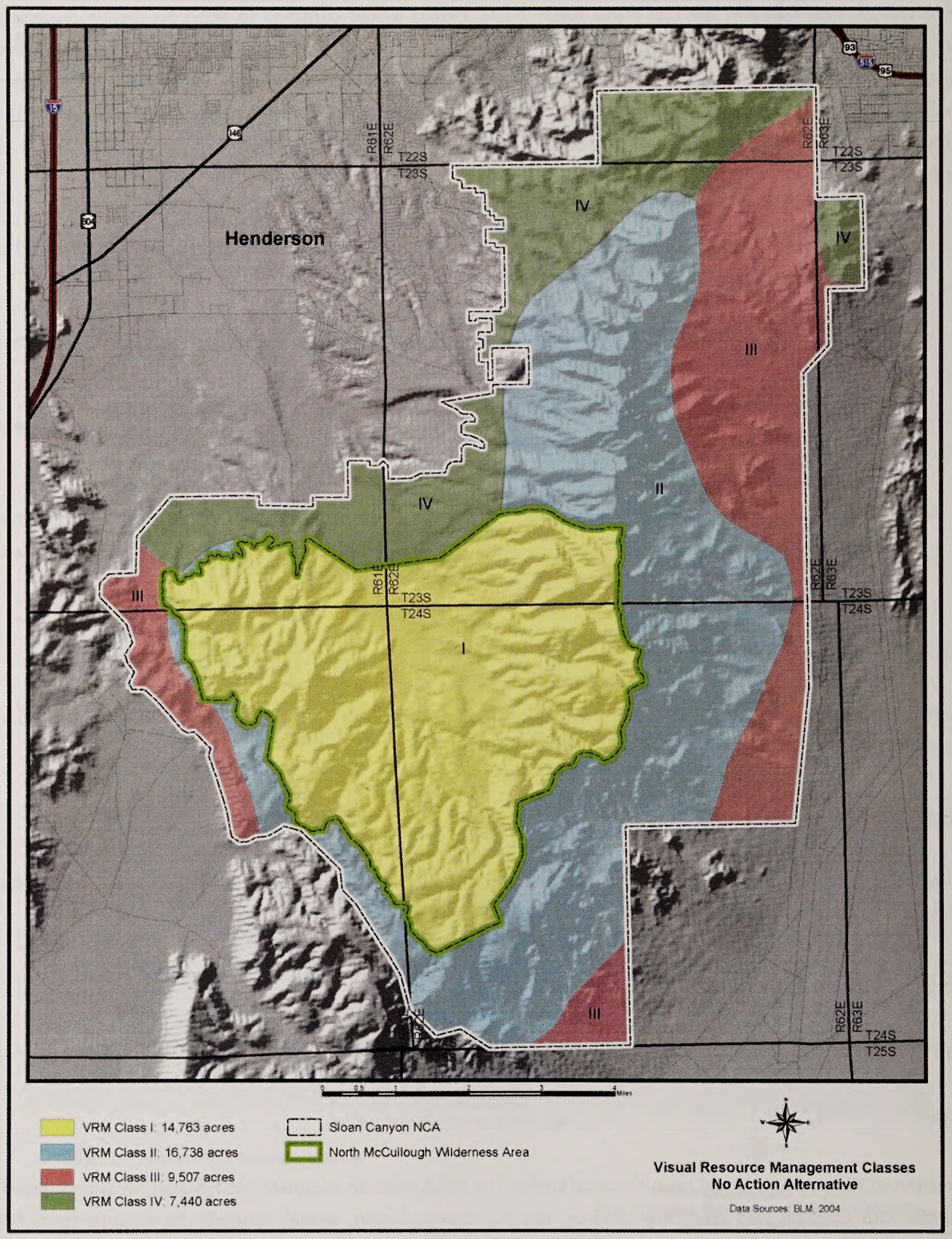
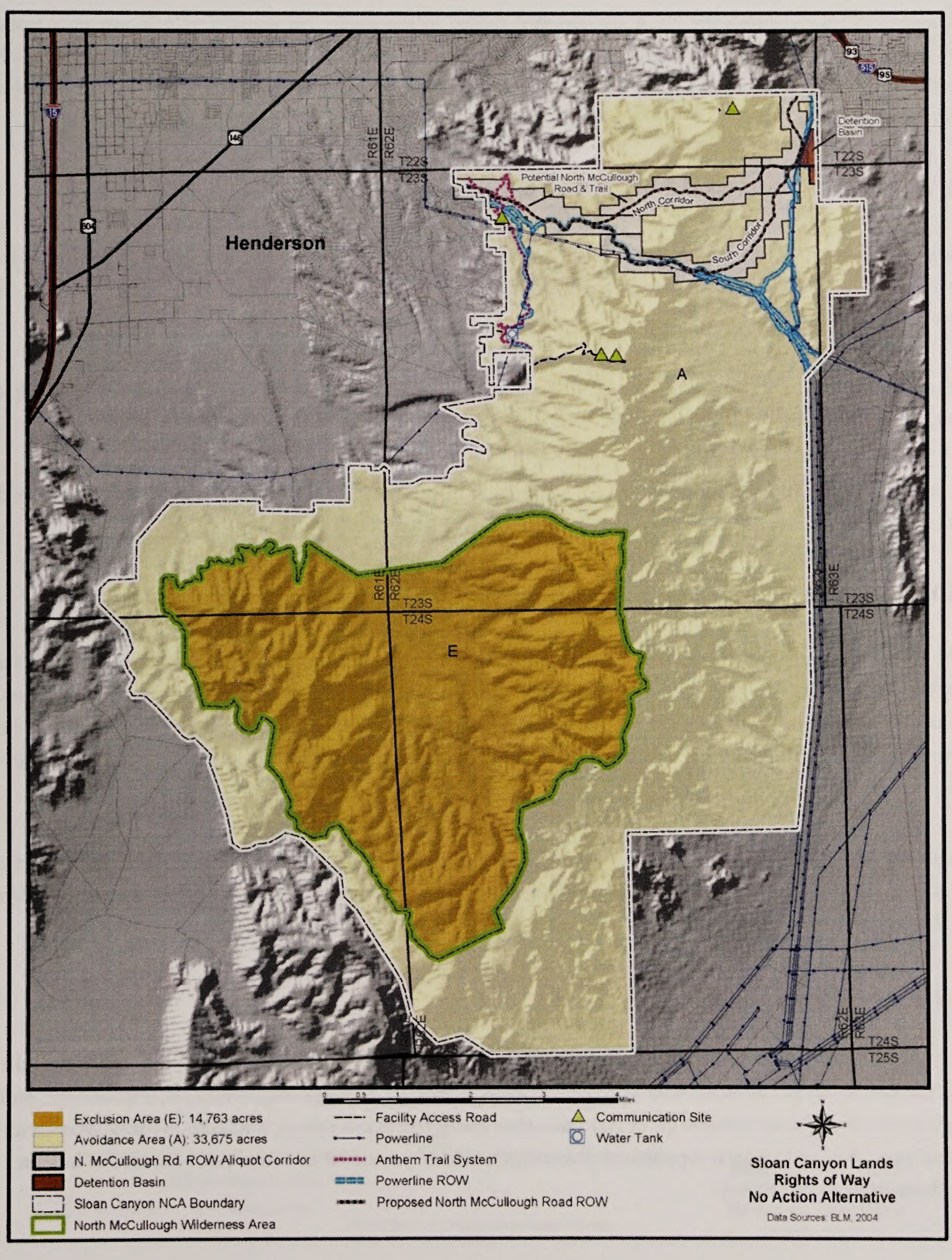


Figure 2.7. Sloan Canyon Rights of Way (No Action Alternative)



2.6.10 Transportation (Licensed Motorized Vehicles [No Action])

All roads and routes within the NCA are currently closed to the public for licensed vehicle use since none have been designated for use at this time. Figure 2.8 presents the historical access roads, most of which require high-clearance vehicles. These access roads typically spur numerous routes and trails used mainly for OHV riding.

2.6.11 Vegetation Management (Including Special Status Species [No Action])

Areas subjected to surface disturbing activities would be rehabilitated, reclaimed, or re-vegetated, if feasible. When rehabilitating, optimum species diversity would be achieved by seeding with native species, as appropriate.

The casual collection of vegetation (e.g., seeds or live plants) would be allowed throughout NCA, but commercial collection would only be allowed outside the Wilderness.

Special Status Species would be managed for full regulatory compliance; for example, all proposed disturbed areas would be evaluated for the presence of Special Status Plant Species.

2.6.12 Wildlife Management (Including Special Status Species [No Action])

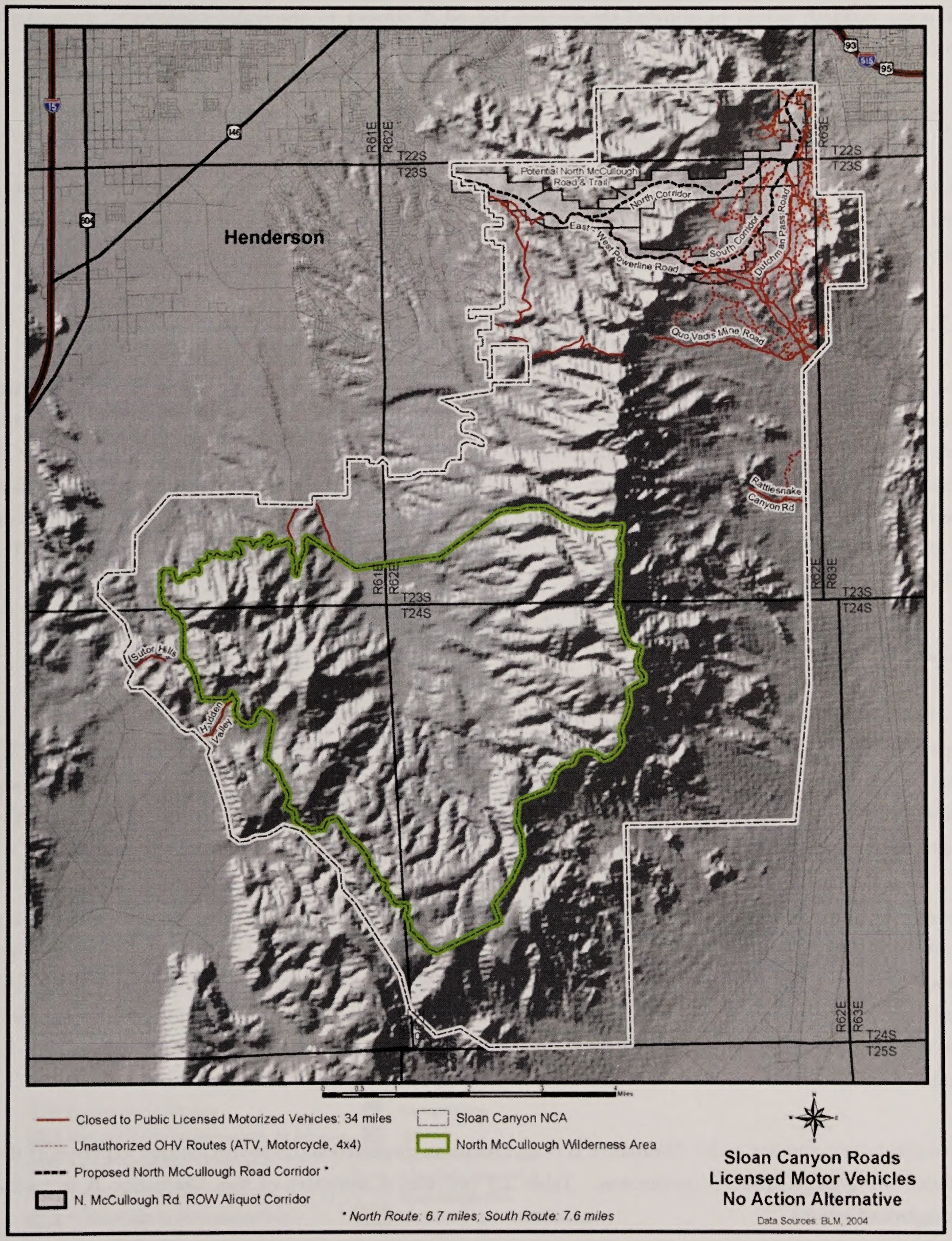
BLM would cooperate with NDOW on management of wildlife resources. For example, bighorn sheep would be managed in the Wilderness under the current MOU with NDOW as well as appropriate regulations. The casual collection of reptiles would be allowed throughout NCA, but commercial collection would only be allowed outside the Wilderness. BLM would issue wildlife specimen collection permits on a case-by-case basis.

Potential nesting areas for migrating raptors would be managed to ensure full regulatory compliance. Special Status Species would be managed to ensure full regulatory compliance as well as with the applicable U.S. Fish and Wildlife Service (USFWS) Biological Opinion.

2.6.13 Livestock Grazing (No Action)

New range improvements designed to reach a uniform distribution of livestock would be allowed within the NCA but not inside of the North McCullough Wilderness Area. Such range improvements, if consistent with the purposes of the Sloan Canyon NCA Act and other management objectives, would be developed on an as-needed basis. Salt and mineral supplement placement would be restricted to a minimum distance of at least 1 mile from water.

Figure 2.8. Sloan Canyon Roads, Licensed Motor Vehicles (No Action Alternative)



2.6.14 Geology and Soils (No Action)

Geologic research would be allowed throughout the NCA subject to regulatory constraints, such as the prohibition on power tools within the Wilderness.

2.7 ALTERNATIVE B: EMPHASIZE NATURAL CHARACTER

This alternative places the greatest emphasis on retaining the natural character of the NCA and includes a minimum of developed facilities. Opportunities for solitude and wilderness-type experiences would be maximized in both the NCA and Wilderness.

2.7.1 Management Emphasis Areas (Alternative B)

The Alternative B MEAs reflect the emphasis on retaining the natural characteristic of the NCA. Under this Alternative, the North McCullough Wilderness Area would be zoned Primitive. Much of the area surrounding the eastern and southern edges of the Wilderness, and the northeastern potions of the NCA, would be zoned Semi-Primitive Non-Motorized. The central portion of the NCA, including the area south of the North McCullough Road and Trail ROW (N-65874), would be zoned Roaded Natural. The north access to Sloan Canyon around the potential visitor contact station would be zoned as Roaded Developed. The MEA zone objectives are described in Section 2.3 and shown on Figure 2.9, MEA Alternative B Map.

2.7.2 Recreation (Alternative B)

To be flexible and responsive to probable increases in user demands, recreation would be managed for experiences and beneficial outcomes based on the objectives of the MEA zones as described in Section 2.3. The character of the zones ranges from primitive to developed in terms of their physical, social, and administrative attributes, and these attributes would define the character of the respective recreation opportunities (e.g., activities available).

Because use of the NCA will likely change dramatically over the coming years, the Alternative B contains flexible recreation guidance, which would be refined into specific management criteria based on use and resource monitoring. Visitation and resource monitoring would be used to establish and assess the NCA's baseline resource conditions and document any changes to them (Appendix C, Recreation Monitoring Plan). Once the resource baselines are determined, a system such as LAC could be used to establish thresholds for future actions.

Recreation opportunities under Alternative B would focus on dispersed and non-mechanized experiences that provide the greatest resource protection. Table 2.3 provides a summary of the Alternative B recreation management actions.

Figure 2.9. Management Emphasis Areas (Alternative B)



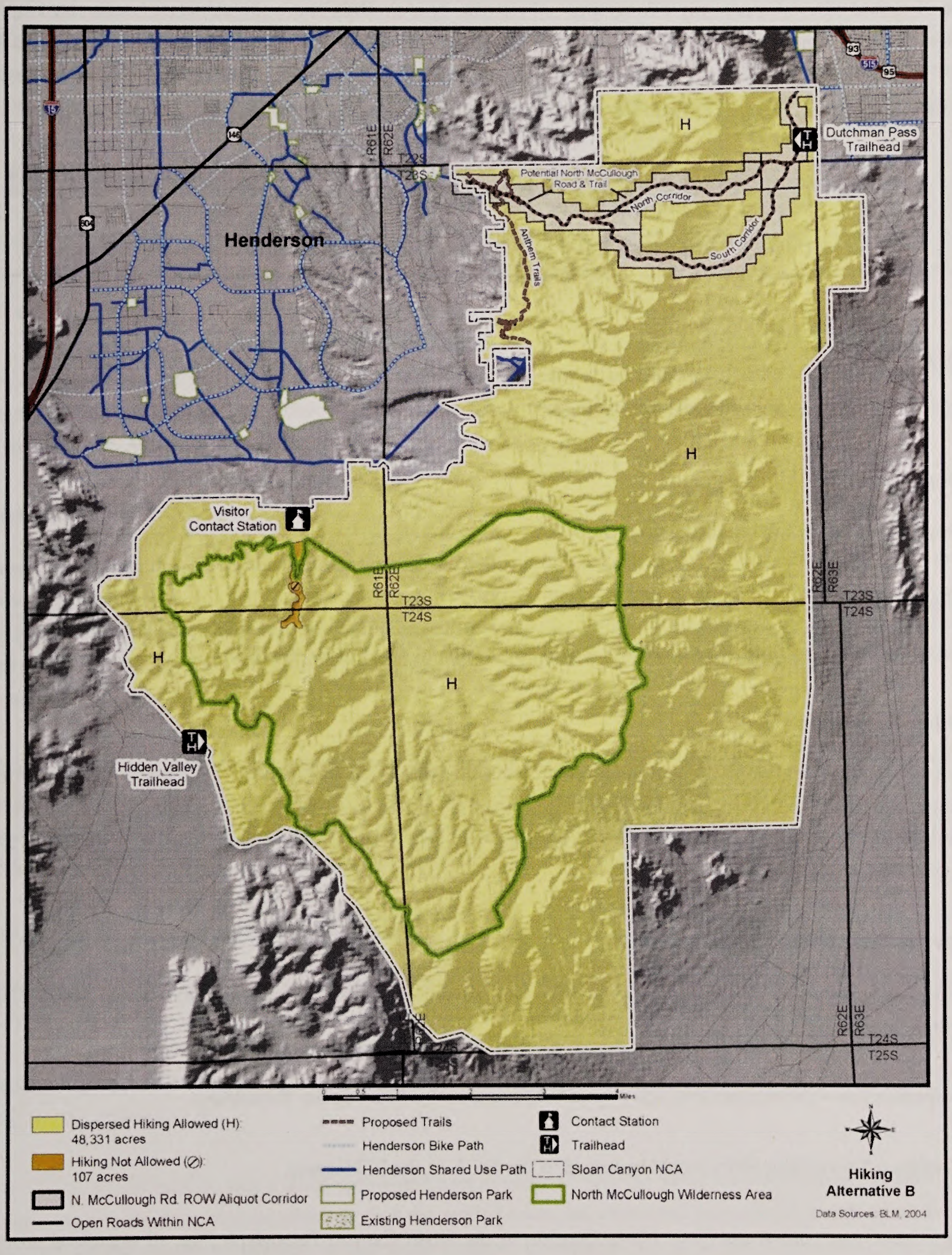
Table 2.3. Recreation Management—Alternative B

Activity	Allowed		Prohibited
	Must stay On Trails	Cross-Country	
Hiking (Figure 2.10)	None	98% of the NCA	Sloan Canyon Petroglyph Site and its northern access
Equestrian Use	Horses only allowed on the proposed North McCullough Trail	None	Approximately 98% of the NCA
Mountain Biking	Mountain bikes only allowed on the proposed North McCullough and Anthem Trails	None	Approximately 97% of the NCA
OHV Use	None		100% of the NCA
Camping/Campfires	None		100% of the NCA
Rock Climbing	None		100% of the NCA
Dogs	None		100% of the NCA
Geocaching	None		100% of the NCA
Recreational Target Shooting	Only NDOW permitted hunting allowed		100% of the NCA
Rockhounding	None		100% of the NCA

Hiking/Equestrian Use/Mountain Biking Areas

Cross-country hiking would be allowed in the NCA, except in the Sloan Canyon Petroglyph Site and its northern access, where hiking is limited to floor of the wash. (Figure 2.10). The entire NCA would be closed to equestrian use except on the City of Henderson's North McCullough Trail. Horses must be fed certified weed-free feed and hay to prevent the spread of noxious and invasive weeds. Mountain biking would be prohibited within the NCA except on the City of Henderson's North McCullough and Anthem Trails.

Figure 2.10. Hiking (Alternative B)



Trails

BLM would not designate any hiking trails within the NCA. Only the trails associated with the City of Henderson's North McCullough Road and Trail ROW N-65874 and the Anthem Trail System ROW (N-76312) would be designed, constructed, and designated. Unauthorized trails would be restored to natural conditions upon discovery. Under Alternative B, the proposed trails and activities are:

Designated and Proposed Trails	Activities
Anthem Trail System (N-76312)	Hiking, mountain biking
North McCullough Trail (N-65874)	Hiking, equestrian use, mountain biking

OHV

The entire NCA would be closed to OHV use.

Dogs

Dogs would be prohibited throughout the NCA.

Nighttime Use

Camping, campfires, and after-hours use would be prohibited throughout the NCA.

Other Recreation Use

Rock climbing, rockhounding, and geocaching would be prohibited in the NCA. All forms of recreational target shooting, including, but not limited to, firearms, bows, crossbows, and paintball guns would be prohibited. Law enforcement activities and hunting activities, in conformance with State of Nevada laws and regulations, would be allowed.

Special Recreational Permits

The management of SRPs would be managed to ensure regulatory compliance and would include the following policies:

Competitive Use— No competitive SRPs would be issued in the NCA or the Wilderness.

Vending— No vending SRPs would be issued in the NCA or the Wilderness.

Organized Group Activity and Event Use— Outside of the Sloan Canyon Petroglyph Site, all organized groups would be required to obtain a SRP on a case-by-case basis for group activities.

2.7.3 North McCullough Wilderness Area (Alternative B)

Under Alternative B, Wilderness management actions provide opportunities for primitive and unconfined recreation opportunities, such as hiking, while providing a level of management necessary to protect sensitive resources and wilderness characteristics. Due to its undeveloped nature, recreation management of the Wilderness, including the Sloan Canyon Petroglyph Site, is intended to be flexible and responsive as visitation and resource conditions change over time.

Under the No Action Alternative, a Wilderness Management Plan would be prepared as required by BLM Manual 8560 and 8561. A Draft Wilderness Management Plan is included in Appendix I, and it will be finalized based on the completed RMP. The Wilderness Management Plan will guide day-to-day activities within the Wilderness.

Monitoring would be used to establish and assess the Wilderness' baseline conditions and document any changes to them. Once the resource baselines are determined, a system such as LAC could be used to establish thresholds for future actions.

Visitation

Based, in part, on the Wilderness Management Plan, visitor numbers, group size, and seasonal and area limits would be established so that wilderness characteristics, including solitude, are not impacted beyond an acceptable limit. These characteristics would be maintained at or below a threshold established after baseline information has been collected and analyzed. Separate thresholds would be established for the Sloan Canyon Petroglyph Site.

Visitation could be limited to minimize social trails and crowding and to reduce impacts to vegetation, soils, cultural resources, and wildlife. Some or all of the following management techniques could be used to maintain wilderness characteristics and protect resources: number people at one time, size of party, timing of visits, daily visitation limits, permits, reservations, guides, and self-guided tours.

Sloan Canyon Petroglyph Site Management

Once residential development on the western side of the NCA is complete, the Sloan Canyon Petroglyph Site will be a short hike from a large urban population. To manage the potential high number of visitors, to protect the sensitive cultural and natural resources, and to protect wilderness characteristics, detailed management actions were developed. Table 2.4 summarizes the Sloan Canyon Petroglyph Site management actions for Alternative B.

All visitors would have to join a BLM-sponsored tour in order to visit the Sloan Canyon Petroglyph Site—no unaccompanied visits would be allowed. For the guided tours, no more than one guided group, of no more than 12 people, would be allowed in the Sloan Canyon Petroglyph Site at a time. However, with prior

reservations organized groups of 6 to 20 people would be allowed to visit the Sloan Canyon Petroglyph Site with a BLM-sponsored guide.

Access to the Sloan Canyon Petroglyph Site would be from the visitor contact station at the north end of Sloan Canyon wash. Access would be controlled at the contact station by requiring the use of BLM-sponsored guides to visit the Sloan Canyon Petroglyph Site and by roaming patrols. Access hours to the Sloan Canyon Petroglyph Site would be the same as the operating hours for the visitor contact station, which would be determined at a future time. In addition to ongoing patrols of the canyon by rangers or other staff, roving rangers and staff would monitor visitor use and resource conditions within Sloan Canyon.

All visitor use of the Sloan Canyon Petroglyph Site would be limited to the Sloan Canyon wash bottom. Activities such as rock climbing, bouldering, and dispersed hiking would be prohibited inside Sloan Canyon.

No signage or improvements such as ladders, stairs, and trails would be located within the Sloan Canyon wash. Access signage indicating that access to the Sloan Canyon Petroglyph Site is allowed by guided tour only beyond this point would be located at various areas, including the south end of the Sloan Canyon Petroglyph Site. Vandalism and illegal dumping in the Sloan Canyon Petroglyph Site would be restored or repaired using non-mechanized hand tools.

Table 2.4. Sloan Canyon Petroglyph Site Management Actions—Alternative B

	Northern Access	Southern Access
Approach	Sloan Canyon wash	None
Access Points	Visitor contact station	None
Guided Tours	1 tour at site at one time 12 people in each guided tour Guided organized groups of 6 to 20 with prior reservations	None
Self Guided Tours	None	None

Recreation Management in the Wilderness

Hiking/Equestrian Use

In the Wilderness, cross-country hiking would be allowed, except in the Sloan Canyon Petroglyph Site and its northern access where hiking would be limited to the bottom of the wash. No equestrian use would be allowed in the Wilderness.

Trails

Under Alternative B, no hiking trails would be designated, constructed, or maintained within the Wilderness. Recreation use resulting in social trails would be dispersed to other locations in the NCA using area closures, barriers, and visitor information. New social trails would be blocked using natural materials to prevent continued use. The visible portions of these social trails would be restored after completing a minimum requirement/minimum tool analysis and using native vegetation. The non-visible portions of the social trails would be left to restore naturally.

Dogs

Dogs would be prohibited in the Wilderness.

Nighttime Use

Camping, campfires, and nighttime use would be prohibited in the Wilderness.

Other Recreation Use

Rock climbing and geocaching would be prohibited in the Wilderness.

Wilderness Signage and Improvements

Wilderness boundary signage would be installed at all known and potential Wilderness access routes and visitor use areas near the boundary. Most signage would be located just outside the Wilderness boundary.

Wilderness visitor registers could be installed outside the Wilderness boundary near parking areas such as Hidden Valley. The registers and any associated signing would be low profile and natural in color.

No improvements such as erosion control structures would be allowed in the Wilderness.

Wilderness Soundscape

Soundscapes within the Wilderness would be maintained at or below baseline ambient noise levels established through acoustical monitoring.

Wilderness Disturbance Restoration

BLM would remove or repair vandalism and illegal dumping in the Sloan Canyon Petroglyph Site by using non-mechanized hand tools and in the remainder of the Wilderness would consider using nonmechanical means. The disturbances and/or alterations would be restored using only non-mechanized hand tools, without altering natural vegetation composition, and by performing all work during low visitation periods. Restoration would be completed within 3 years of the ROD for this RMP.

Noxious and invasive weeds would be managed in accordance with the *Partners Against Weeds – An Action Plan for BLM* (BLM 1996) initiative for weeds.

2.7.4 Cultural Resources (Alternative B)

The management of the cultural resources sites would be guided by Appendix D, which contains elements of a Cultural Resources Management Plan and by use categories. Additional information on these categories and Appendix D can be found in Section 2.5.3.

The majority of rockshelters and rock art sites (other than the Sloan Canyon Petroglyph Site) would be assigned to the conservation for future and traditional use management categories. The remainder of the rockshelters would be assigned to the scientific, public, and traditional use categories. The remainder of the rock art sites would be assigned to conservation for future, scientific, and traditional use management categories. Approximately half of other prehistoric and historic sites would be assigned to conservation for future and traditional use, while the remaining sites would be assigned to scientific, public, and traditional use management categories

Sites ineligible for inclusion in the NRHP and isolates would be assigned to the scientific and experimental use management categories. Mitigation beyond recordation would not be required for land disturbing activities, since it not covered under Section 106.

In areas identified as having a medium-to-high potential for cultural resource sites (Duke et al. 2004), a Class III cultural resources inventory (100 percent) would be required prior to any land disturbing undertaking. For areas with a low potential density for cultural resource sites, a reconnaissance-level inventory would be required prior to land disturbing activities. Areas with a low potential would be considered for elimination of inventory requirements when sufficient information is available.

Maximum fire suppression would be utilized in the Sloan Canyon Petroglyph Site. Areas with a high or medium potential for cultural resources would utilize flexible fire suppression with a cultural resource advisor assigned to the fire. In areas with low potential for cultural resources, fire control would be discretionary and no cultural resource advisor would be required.

Sloan Canyon Petroglyph Site

The Sloan Canyon Petroglyph NRHP site would be assigned to the traditional, scientific, conservation for future, and public use management categories within the limits prescribed by the Wilderness Management Plan and the Clark County Act, Title II ("Wilderness Areas"). Changes to the natural condition of the site would be minimized.

2.7.5 Special Designations—Areas of Critical Environmental Concern (Alternative B)

The Sloan Rock Art District ACEC would be modified to match the boundary of the Sloan Canyon Petroglyph Site as listed in the NRHP (Figure 2.11).

2.7.6 Visual Resources (Alternative B)

VRM classes would be established based on the Visual Resource Inventory, including designating the North McCullough Wilderness Area as VRM Class I. VRM classes would be designated as shown on Figure 2.12, VRM Classes Alternative B Map. The following VRM class definitions would be used:

- **VRM I**: To preserve the existing character of the landscape. Authorized actions may not modify the existing landscape or attract the attention of casual viewers.
- **VRM II**: To retain the existing character of the landscape. The level of change to the characteristic landscape should be low and may not attract the attention of casual viewers.
- **VRM III**: To partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate and may minimally attract the attention of the casual viewer.

2.7.7 Interpretation (Alternative B)

The presence of interpretive media such as brochures would be minimized, and visible media, such as signs, would be low profile, natural in color, and used to orient visitors while providing resource protection. Stationary interpretive media (kiosks, bulletin boards) would be located in highly developed areas such as parking areas or a visitor center. Other interpretive media (i.e., trail brochures, maps, etc.) could be produced to accompany visitors into the NCA. Generally, there would be a focus on the use of interactive virtual interpretation media, such as Web sites.

2.7.8 Facilities (Alternative B)

Developed access points into the NCA could include the northern entrance of Sloan Canyon, the Hidden Valley Trailhead, and Dutchman Pass Trailhead. Figure 2.13, Proposed Facilities Alternative B Map, depicts the locations of these facilities. Additionally, information on the NCA would be provided at facilities located outside of the NCA, for example at schools and libraries located throughout the City of Henderson.

Figure 2.11. Sloan Canyon Rock Art Site Area of Critical Environmental Concern (Alternative B)

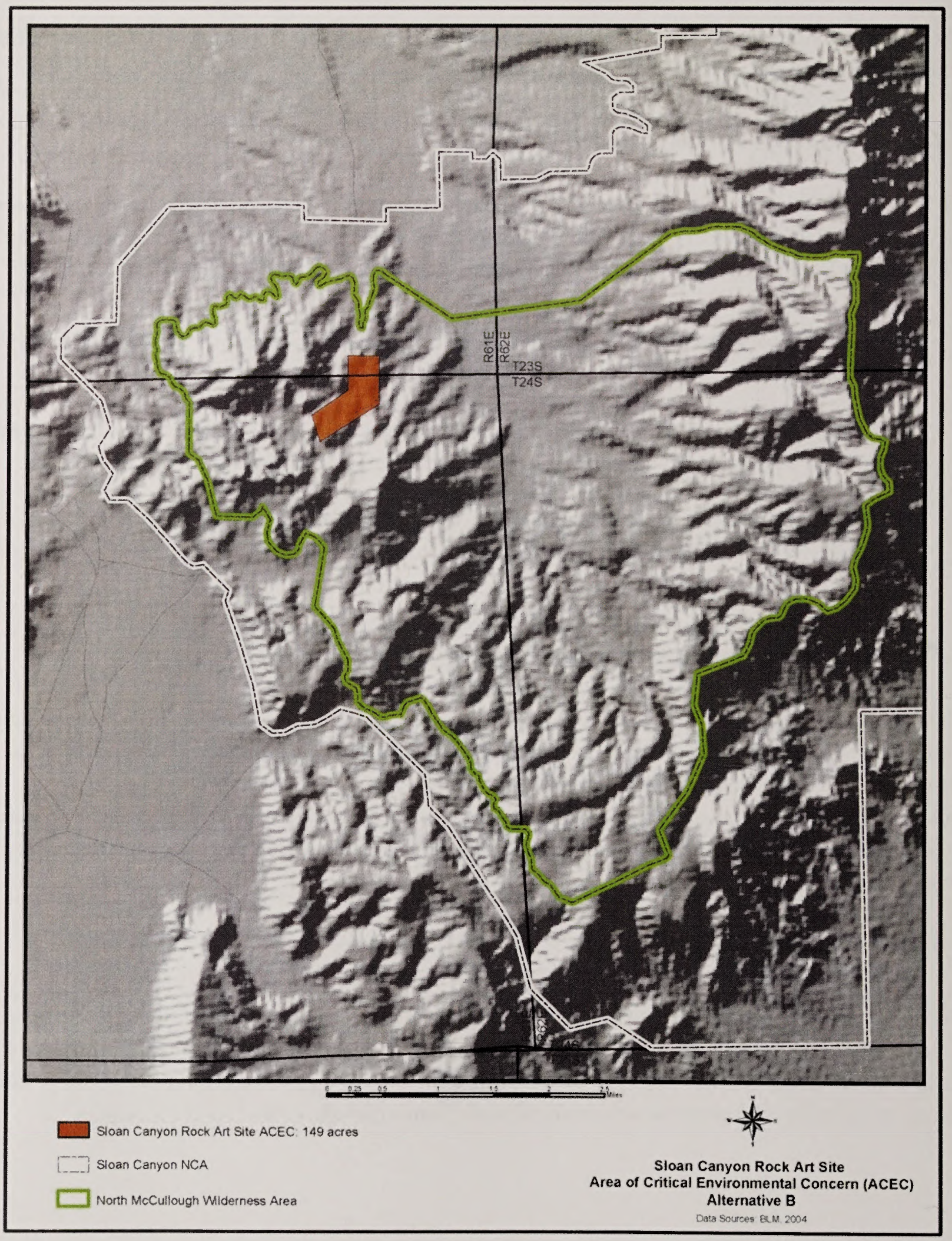
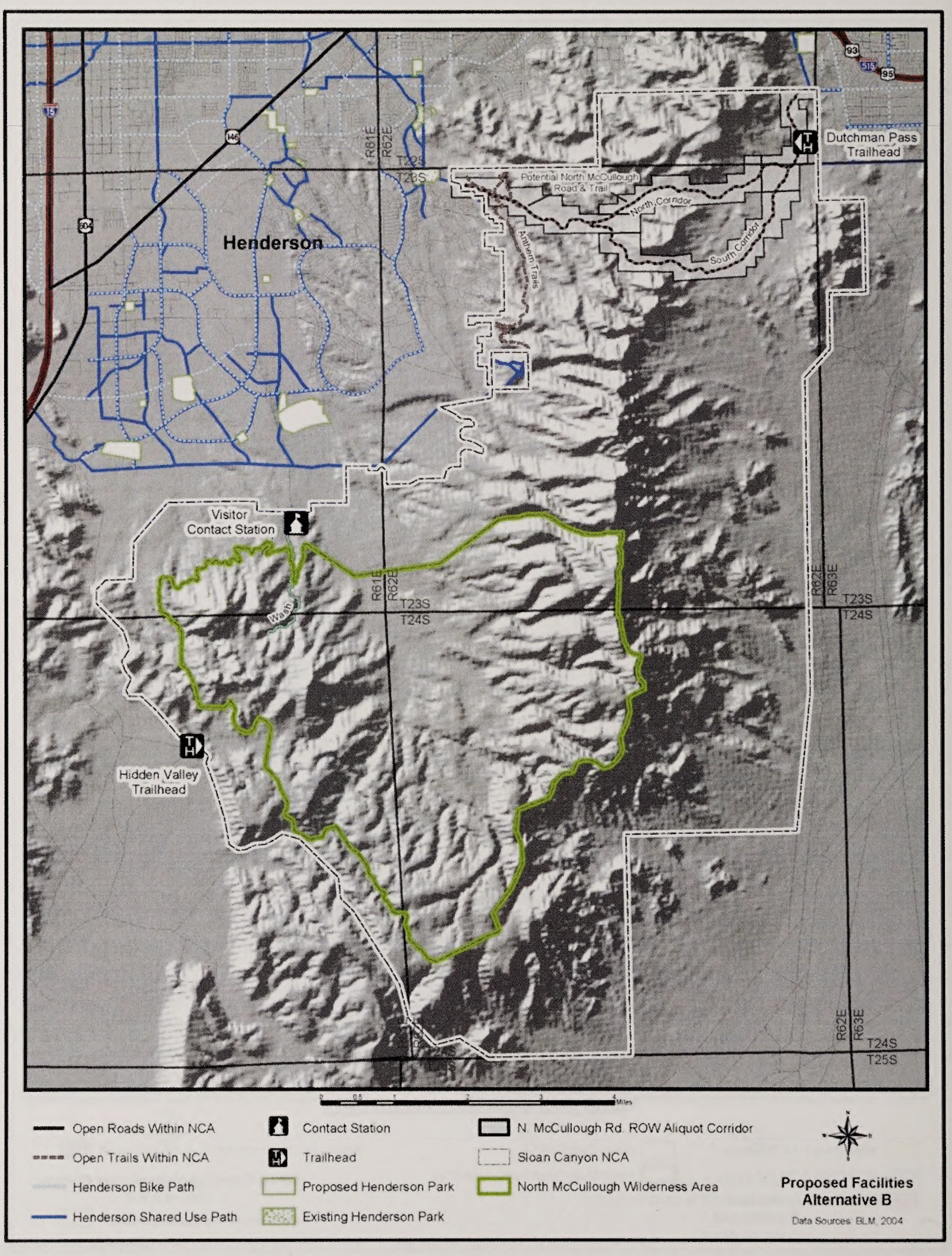


Figure 2.12. Visual Resource Management Classes (Alternative B)



Figure 2.13. Proposed Facilities (Alternative B)



Northern Entrance of Sloan Canyon

A visitor contact station would be constructed near the NCA boundary at the north entrance to Sloan Canyon. The visitor contact station could provide interpretative material to assist in resource protection, contact personnel, and serve as an access point for the Sloan Canyon Petroglyph Site. Another facility could be located in close proximity to the visitor contact station and include amenities to support maintenance and other administrative purposes. The total disturbed area, including a parking lot, was assumed to be 2 acres.

Hidden Valley Trailhead

A gravel parking lot, suitable for 10 cars, an interpretive kiosk, and a vault toilet would be constructed at the NCA boundary. For analysis purposes, the total disturbed area was assumed to be 7,500 square feet.

Dutchman Pass Trailhead

A gravel parking lot, suitable for 20 cars, an interpretive kiosk, and a vault toilet would also be constructed near the northeastern boundary of the NCA at Dutchman Pass. For analysis purposes, the total disturbed area was assumed to be 13,500 square feet.

2.7.9 Lands and Realty (Alternative B)

Outside the Wilderness, applications for new linear or site-type ROWs or any amendments to existing ROWs would be considered on a case-by-case basis within the NCA, if the action furthers the purpose of the NCA in Section 602 of the Sloan Canyon NCA Act (Figure 2.14). Evaluation criteria could include, in part:

- Direct benefit to the NCA, such as utilities to serve NCA facilities
- Maintaining or decreasing visual contrast
- Reduction of disturbed area
- Improvement in road/ROW alignments to minimize resource impacts.

No commercial film permits would be issued within the NCA.

2.7.10 Transportation (Licensed Motorized Vehicles [Alternative B])

The North McCullough Road, when constructed, would be open for licensed vehicles. All other roads and routes would be closed to public licensed vehicle use, as shown in Figure 2.15, Sloan Canyon Roads – Licensed Motorized Vehicles Alternative B Map.

Figure 2.14. Sloan Canyon Rights of Way (Alternatives B, C, and D)

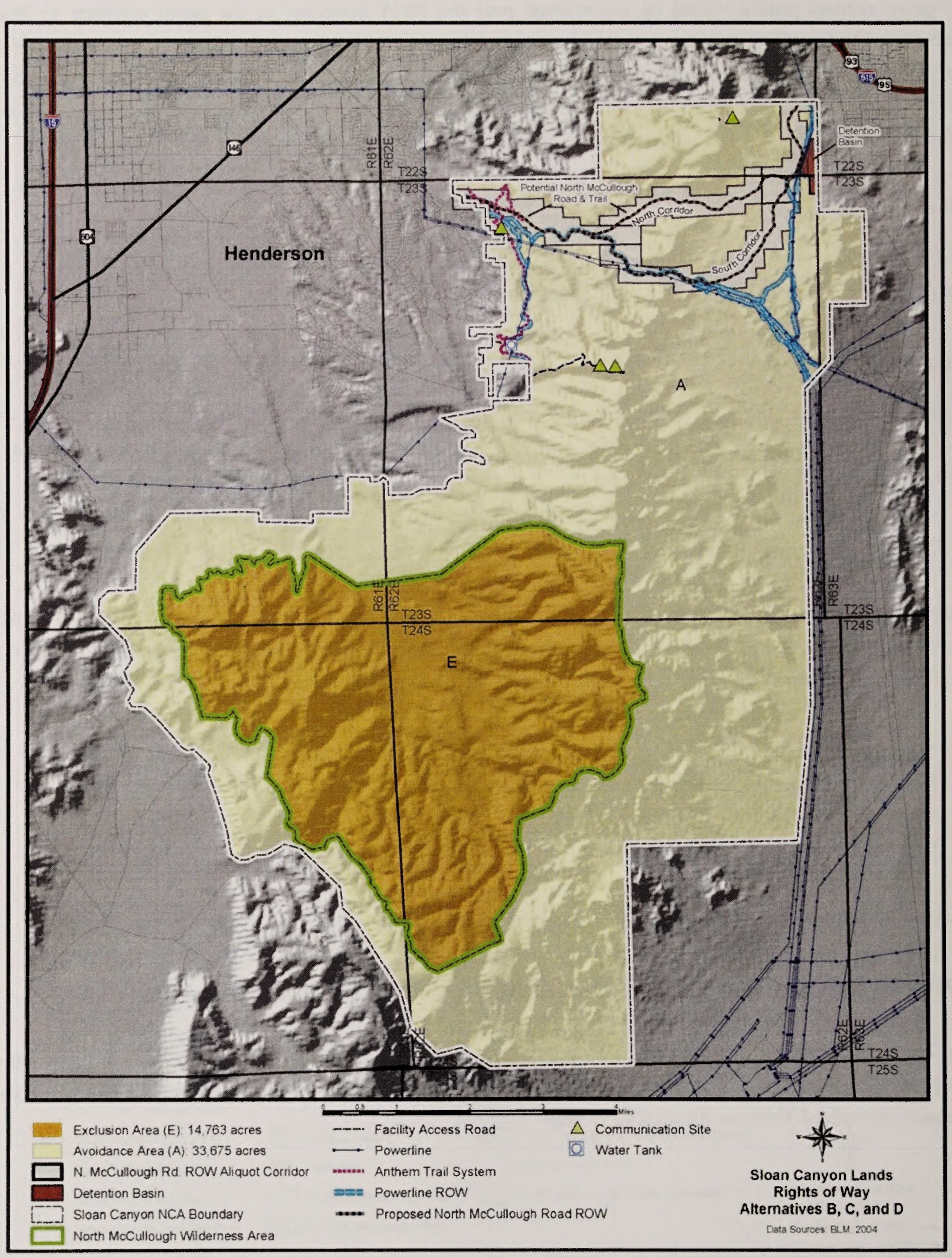
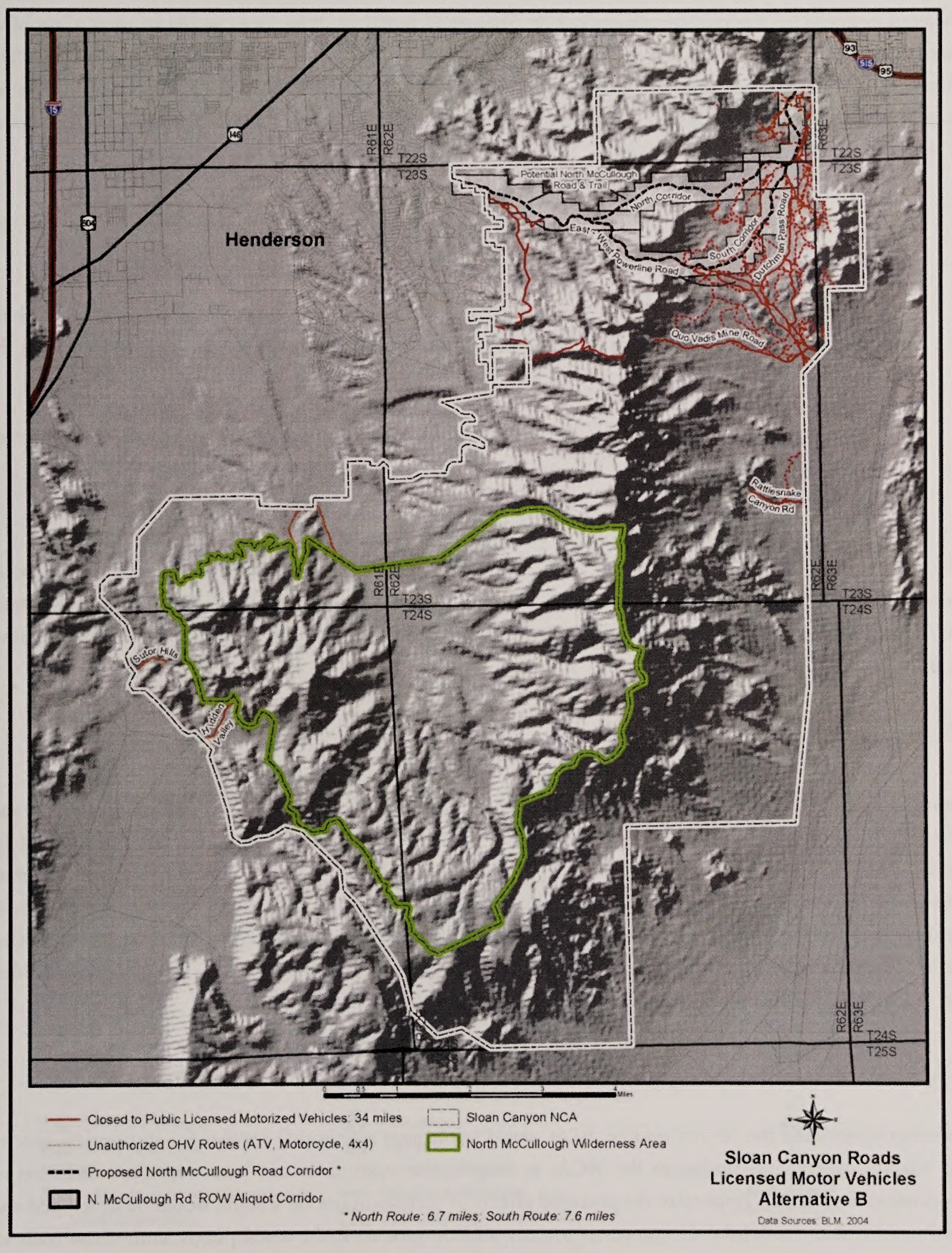


Figure 2.15. Sloan Canyon Roads, Licensed Motor Vehicles (Alternative B)



2.7.11 Vegetation Management (Including Special Status Species [Alternative B])

Vegetation would be managed by zone based on Alternative B MEAs. The zones would be used to promote native plant communities and restore the plant productivity of disturbed areas through restoration. The threshold of disturbance before restoring natural or improving the condition of native plant communities for each zone would be as follows and is shown in Figure 2.16, Vegetation Disturbance Management Alternative B Map:

- Zone 1 (Primitive MEA) — Conduct restoration if the surface disturbing activity may alter the natural vegetation community processes or if it reduces the viability of local species populations.
- Zone 2 (Semi-Primitive Non-Motorized MEA)— Conduct restoration if the surface disturbing activity may have a short-term impact on natural vegetation community processes or if it reduces the viability of local species populations.
- Zone 3 (Roaded Natural and Roaded Developed MEAs)— Conduct restoration if the surface disturbing activity may have a long-term impact on natural vegetation community processes or if it could have a long-term impact on local species populations.

The priority for restoration projects would focus on Restoration Zone 3 to restore or improve conditions in native plant communities. Restoration of disturbed areas in the North McCullough Wilderness Area would be accomplished through natural processes. Any developed landscaping would use only plant species native to the NCA.

The casual and commercial collection of vegetation would be prohibited in the NCA.

Sensitive and Special Status Species habitats would be protected to ensure suitable habitat conditions and population viability. In addition, scientific research and monitoring of Special Status Species would be encouraged. BLM would develop partnerships with universities and other educational groups to facilitate research on and monitoring of Special Status Species. Same as the No Action Alternative, potential threats to sensitive or Special Status Species from surface disturbance would be evaluated for the presence of Special Status Plant Species; however, surface disturbing activities within sensitive or Special Status Species habitat and federally listed species would be avoided if feasible.

2.7.12 Wildlife Management (Including Special Status Species [Alternative B])

To better understand the NCA's wildlife, BLM would implement monitoring surveys for appropriate species and wildlife observation studies in the NCA, as long as the study does not harass species. Interpretive information designed to emphasize the potential effects of recreation use on wildlife would be developed and distributed within the NCA. However, to protect wildlife species, BLM could permanently close trails or areas or restrict activities.

Figure 2.16. Vegetation Disturbance Management (Alternative B)



Same as the No Action Alternative, bighorn sheep would be managed in the Wilderness under the current MOU with NDOW as well as appropriate regulations. In addition, visitors would be educated to be sensitive to raptor nesting areas during the months of April and May and bighorn lambing areas from January to May. Same as the No Action Alternative, potential nesting areas for migrating raptors would be managed to ensure full regulatory compliance. Non-impacting observation cameras could be located to allow visitors to remotely view the NCA's wildlife.

The casual and commercial collection of reptiles would be prohibited throughout the NCA. Wildlife specimen collection permits would not be issued for scientific research.

Feral animals, including dogs and cats, would be removed from the NCA by coordinating with appropriate local, State, and Federal agencies on the trapping and transfer of populations of animals posing a threat to wildlife health or human health and safety. Bird feeders would be prohibited within the NCA, and visitors would be educated about the impacts of bird feeders on wildlife.

Special Status Species habitat would be maintained and protected to ensure suitable habitat conditions and viable populations. Disturbance or development would be avoided in areas of Special Status Species potential habitat. BLM would emphasize scientific research and monitoring of Special Status Species and encourage research partnerships with universities and other educational groups.

2.7.13 Livestock Grazing (Alternative B)

Placement of salt and mineral supplements and new range improvements would be prohibited within the NCA.

2.7.14 Geology and Soils (Alternative B)

Nonintrusive geologic research would be allowed throughout the NCA, subject to regulatory constraints.

2.8 Alternative C: Allow Moderate Developed Use While Maintaining Natural Character (Preferred Alternative)

Alternative C focuses on a moderate increase in development while maintaining the natural characteristics of the NCA and Wilderness. Where appropriate, recreational opportunities such as hiking (on constructed trails), mountain biking, and equestrian use could be provided. In addition, the NCA could experience more development than in Alternative B, such as a multipurpose visitor center and dirt road access into interior portions of the NCA. Increased use that requires higher levels of management would be anticipated. The Sloan Canyon Petroglyph Site would be accessed mainly from a visitor's center at the north end of Sloan Canyon, and guided tours would be required during periods of heavy use.

Table 2.8. Sloan Canyon Petroglyph Site Management Actions—Alternative D

	Northern Access	Southern Access
Approach (Figure 2.22)	2 Designated trails, each approximately 1 mile • In wash • Higher trail to avoid rockfall	Designated trail from the Hidden Valley Trailhead – approximately 1.5 miles.
Access Points	Visitor center	Hidden Valley Trailhead and Visitor Contact Station
Guided Tours	• Organized groups of 10 to 35 with prior reservations	
Self Guided Tours	• Experience an interpretative presentation/briefing on appropriate visitor use and site etiquette • Visitation allowed during visitor center operating hours	• Experience a interpretative presentation/briefing on appropriate visitor use and site etiquette • Visitation allowed during visitor center operating hours

Use of the Sloan Canyon Petroglyph Site would be limited to the visitor center's and visitor contact stations' operational hours, which would be determined by BLM. Same as Alternative B, ongoing patrols of the canyon by rangers or other staff, roving rangers and staff would monitor visitor use and resource conditions within Sloan Canyon. Same as Alternative C, unguided canyon visitors would experience an interpretive presentation on appropriate visitor use and site etiquette at cultural resources sites and Wilderness. At the visitor center, this could include an interpretive video, or a static display, but at the visitor contact station Hidden Valley Trailhead, it would likely be an informal presentation or brochures and kiosk information. Signage and interpretative media would be allowed within the Sloan Canyon Petroglyph Site and access areas for educational purposes and to protect wilderness values.

Rock climbing and rock hounding would be prohibited in the Sloan Canyon Petroglyph Site. In addition, dogs would be prohibited in the Sloan Canyon Petroglyph Site and its northern access but would be allowed in the remainder of the Wilderness.

Monitoring would be used to establish and assess the Wilderness' baseline conditions and document any changes to them. Once the resource baselines are determined, a system such as LAC could be used to establish thresholds for future actions.

Visitation

Same as Alternative B and Alternative C, wilderness characteristics, including solitude and naturalness, would be monitored based on a wilderness baseline, which would be to be established, for visitation and resource conditions and to document future changes. A system such as LAC would be used to establish thresholds for future actions.

Same as Alternative B and Alternative C, if necessary, the visitation thresholds could be adjusted based on monitored changes to wilderness characteristics. The following management techniques could be used to maintain wilderness characteristics and protect natural resources: number of people allowed to an area at a time, party size, timing of visits, daily visitation, use permits, reservations, guides, and self-guided tours.

Same as Alternative B and Alternative C, separate thresholds would be established for the Sloan Canyon Petroglyph Site. Visitation could be limited to minimize impacts from activities such as social trails and crowding on vegetation, soils, cultural resources, wildlife values, and wilderness characteristics. Permanent improvements would be allowed solely for resource protection, human health, and safety and/or enhancement of wilderness values. Vandalism and wastes illegally disposed of within the Wilderness would be removed or repaired after conducting a minimum requirement/minimum tool analysis.

Sloan Canyon Petroglyph Site Management

Same as Alternative C, access to and use of the Sloan Canyon Petroglyph Site would be constrained to the canyon bottom and a limited number of designated trails. The main access to the Sloan Canyon Petroglyph Site would be controlled through a visitor center located near the NCA boundary at the northern end of the Sloan Canyon, the visitor contact station at the south entrance from the Hidden Valley Trailhead, and ongoing canyon patrols.

Permits would not be required for visiting the Sloan Canyon Petroglyph Site. Visitors could go to the Sloan Canyon Petroglyph Site unaccompanied by a BLM-sponsored guide. Group sizes or group numbers of self-guided visitors would not be limited unless needed to prevent impacts to wilderness characteristics or other canyon resources. Same as Alternative C, with prior reservations organized groups of 10 to 35 people would be allowed to visit the Sloan Canyon Petroglyph Site accompanied by a BLM-sponsored guide.

Table 2.8 summarizes the Sloan Canyon Petroglyph Site management actions for Alternative D.

Other Recreation Use

Rock climbing would be allowed outside of designated sensitive resource areas, such as the Sloan Canyon Petroglyph Site and its northern access, in the NCA including the Wilderness. Bouldering and traditional rock climbing with use of low-profile, natural colored, fixed anchors would be allowed outside of sensitive resource areas in the Wilderness. The use of power drills for installation of anchors would be prohibited in the Wilderness. Rockhounding would be allowed outside of sensitive resource areas in the NCA. Same as Alternative B and Alternative C, geocaching and all forms of recreational target shooting, including but not limited to firearms, bows, crossbows, and paintball guns would be prohibited. Law enforcement activities and hunting activities, in conformance with State of Nevada laws and regulations, would be allowed.

Special Recreational Permits

Same as Alternative C, the management of SRPs would be managed to ensure regulatory compliance would include the following policies:

Competitive Use- Same as the No Action Alternative and Alternative C, competitive SRPs could be issued in the NCA, outside the Wilderness.

Vending - Same as the No Action Alternative and Alternative C, vending SRPs could be issued in the NCA, outside the Wilderness.

Organized Group Activity and Event Use - Same as Alternative B and Alternative C, outside the Sloan Canyon Petroglyph Site, all organized groups would be required to obtain a SRP on a case-by-case basis for group activities.

2.9.3 North McCullough Wilderness Area (Alternative D)

Under Alternative D, Wilderness management actions provide opportunities for primitive and unconfined recreation opportunities, such as hiking and equestrian use while providing a level of management necessary to protect sensitive resources and wilderness characteristics. Because of its undeveloped nature, recreation management of the Wilderness, including the Sloan Canyon Petroglyph Site, is intended to be flexible and responsive as visitation and resource conditions change over time.

Under the No Action Alternative, a Wilderness Management Plan would be prepared as required by BLM Manual 8560 and 8561. A Draft Wilderness Management Plan is included in Appendix I, and it will be finalized based on the completed RMP. The Wilderness Management Plan will guide day-to-day activities within the Wilderness.

Figure 2.32. Camping (Alternative D)

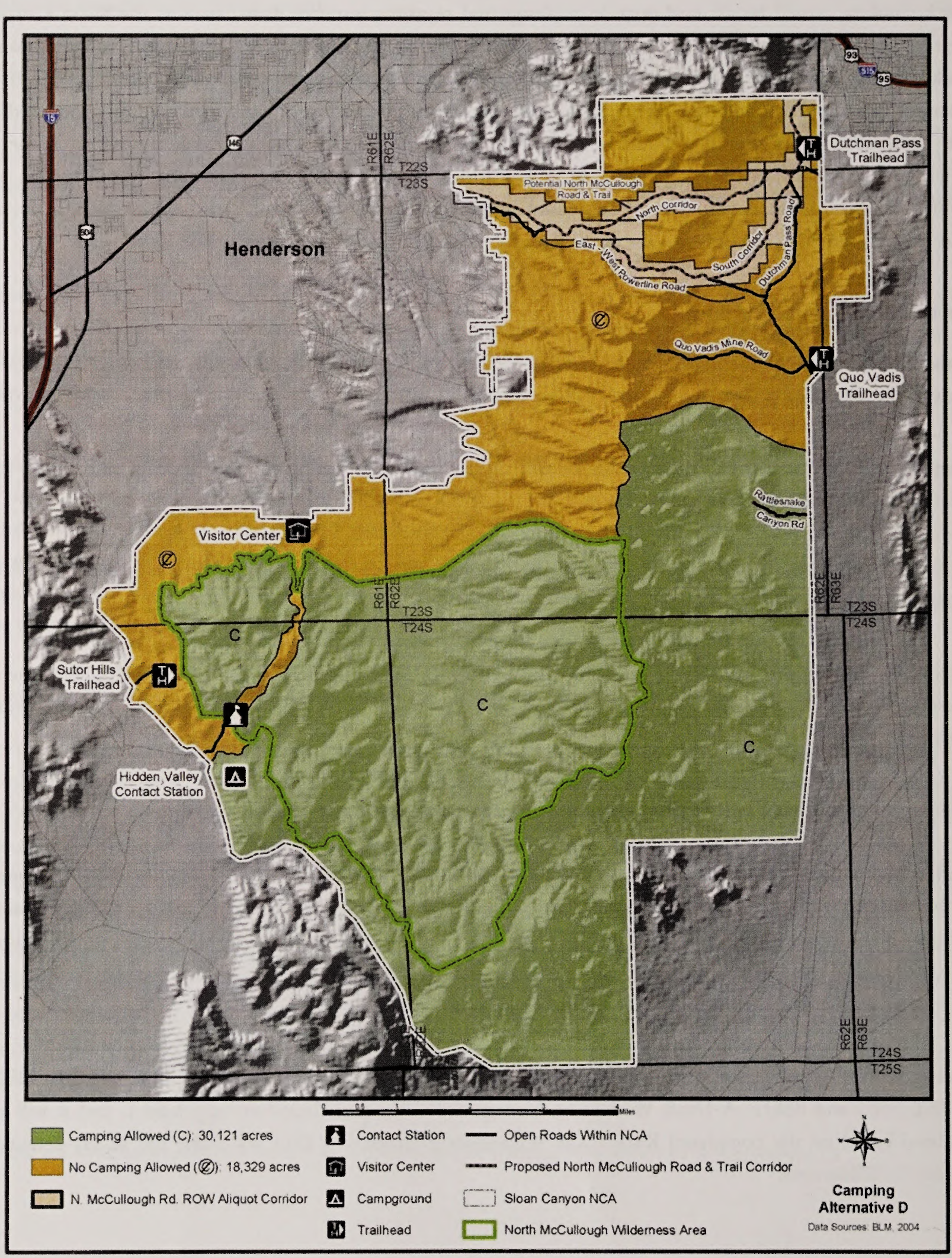
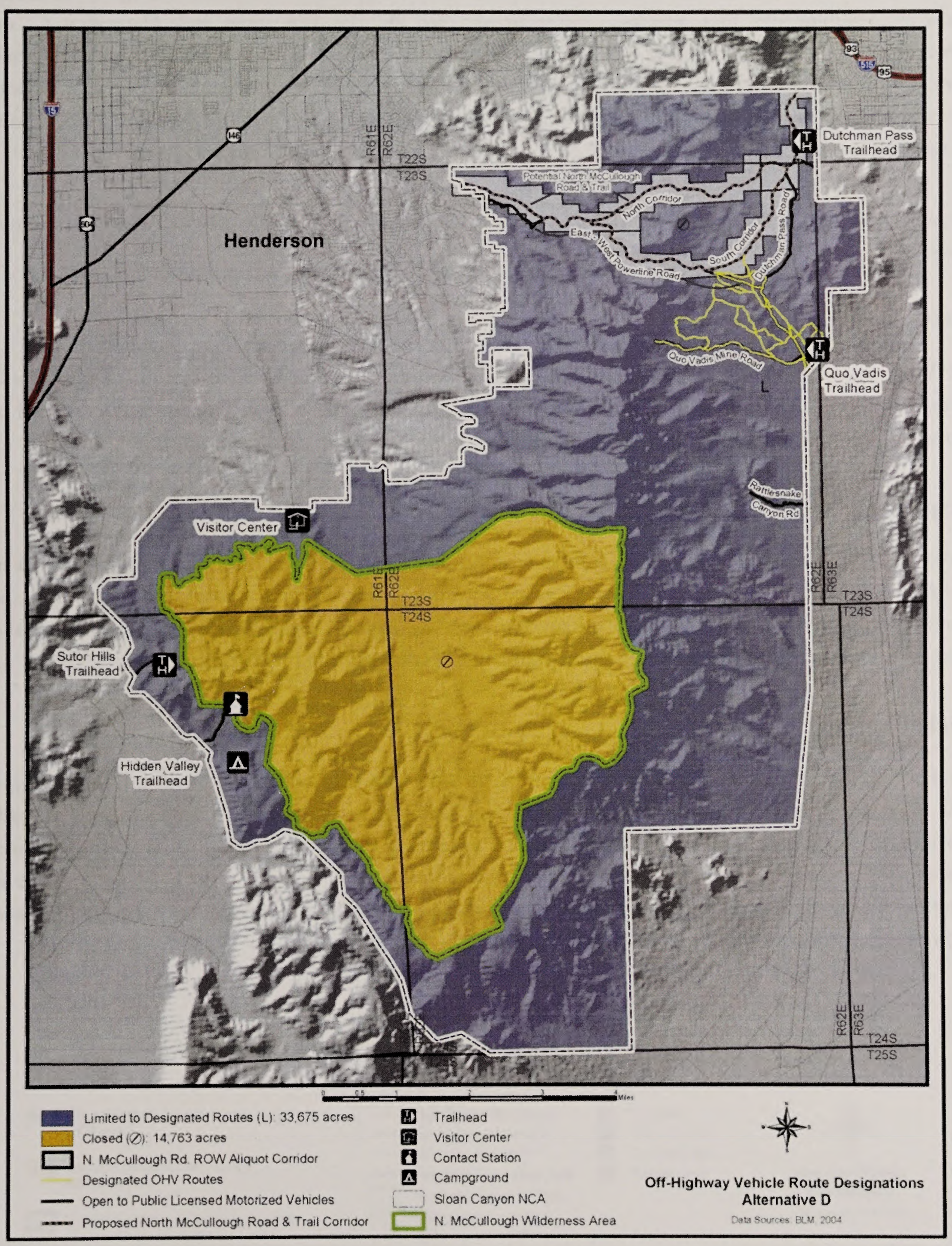


Figure 2.31. Off-Highway Vehicle Route Designations (Alternative D)



Permanent improvements would be allowed only for the purposes of resource protection measures, enhancement of wilderness values, and erosion control and only after conducting a minimum requirements/minimum tool analysis. Same as the No Action Alternative and Alternative C, the development of improvements (for example, trails) near wildlife water would be prohibited within a ¼mile area. Same as Alternative C, all trails outside the Wilderness would be evaluated and developed with consideration to the *Americans with Disabilities Act of 1990* prior to construction and designation. Wheelchairs would be allowed in the Wilderness, but BLM is not required to facilitate such uses.

Unauthorized trails would be evaluated and considered whether to close and restore or adopt into the trail system.

OHV

OHV use would be allowed on designated routes as shown on the OHV Route Designations Alternative D Map, Figure 2.31. The remainder of the NCA, including the North McCullough Wilderness Area, would be closed to OHV use.

Dogs

Dogs would not be required to be on a leash in most of the NCA except they would be prohibited in designated sensitive resource areas. Same as Alternative C, any dog feces would be required to be immediately removed and packed out by the animal owner. Low-profile, natural in color disposal centers and bags for dog waste would be placed and maintained at trailheads outside the Wilderness.

Nighttime Use

Same as Alternative C, primitive, dispersed camping as shown on the Camping Alternative D Map, Figure 2.32 would be allowed. In addition, a small campground would be located near the Hidden Valley Trailhead. No water or other amenities would be provided and campers would have to be self-sufficient. Campfires made only at camping sites, in BLM-authorized fire rings, outside of Wilderness would be allowed. Same as Alternative C, in the Wilderness campfires would only be allowed in fire pans or with use of fire blankets, and all fire waste products would be required to be packed out.

Figure 2.30. Mountain Biking (Alternative D)

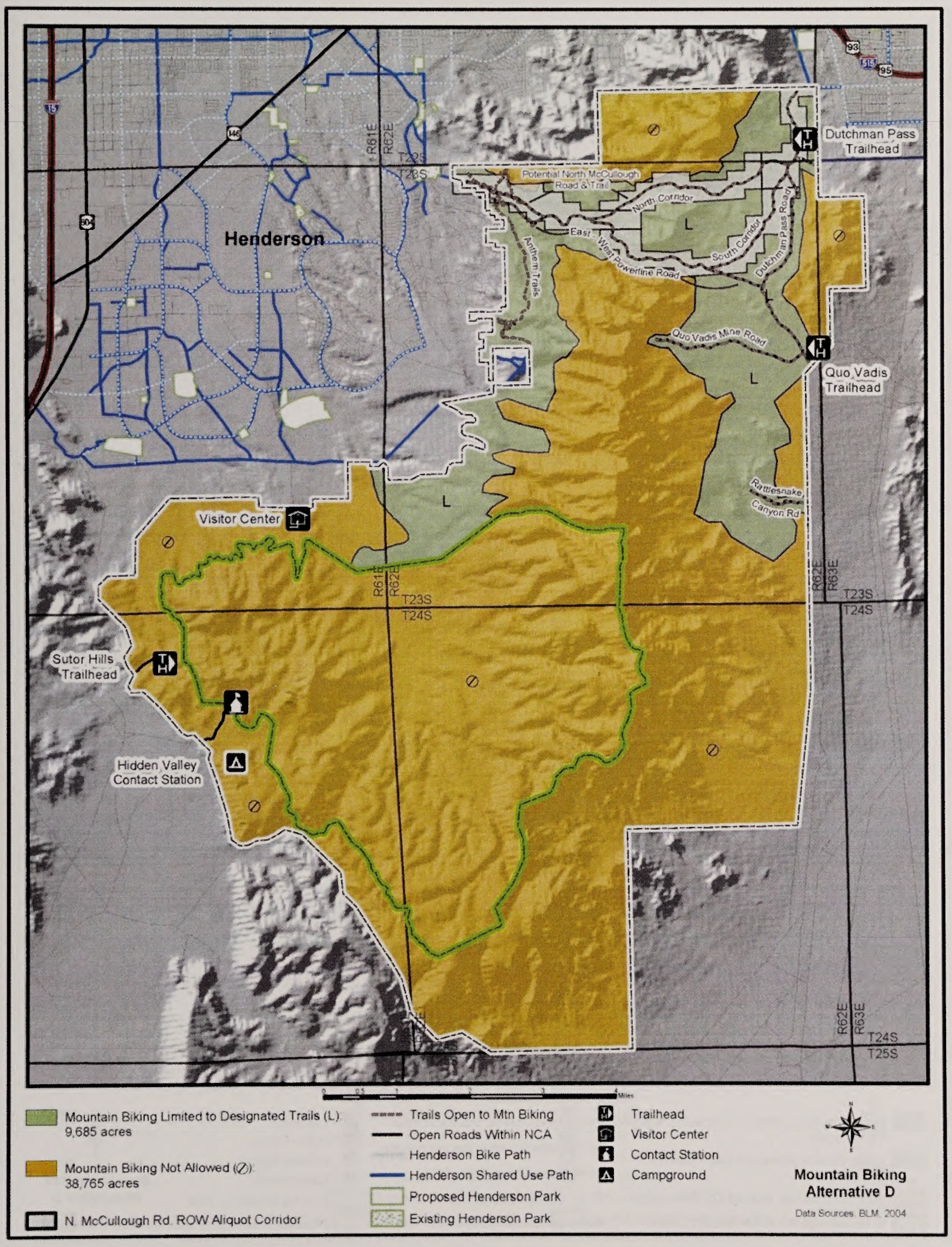


Figure 2.29. Equestrian Use (Alternative D)

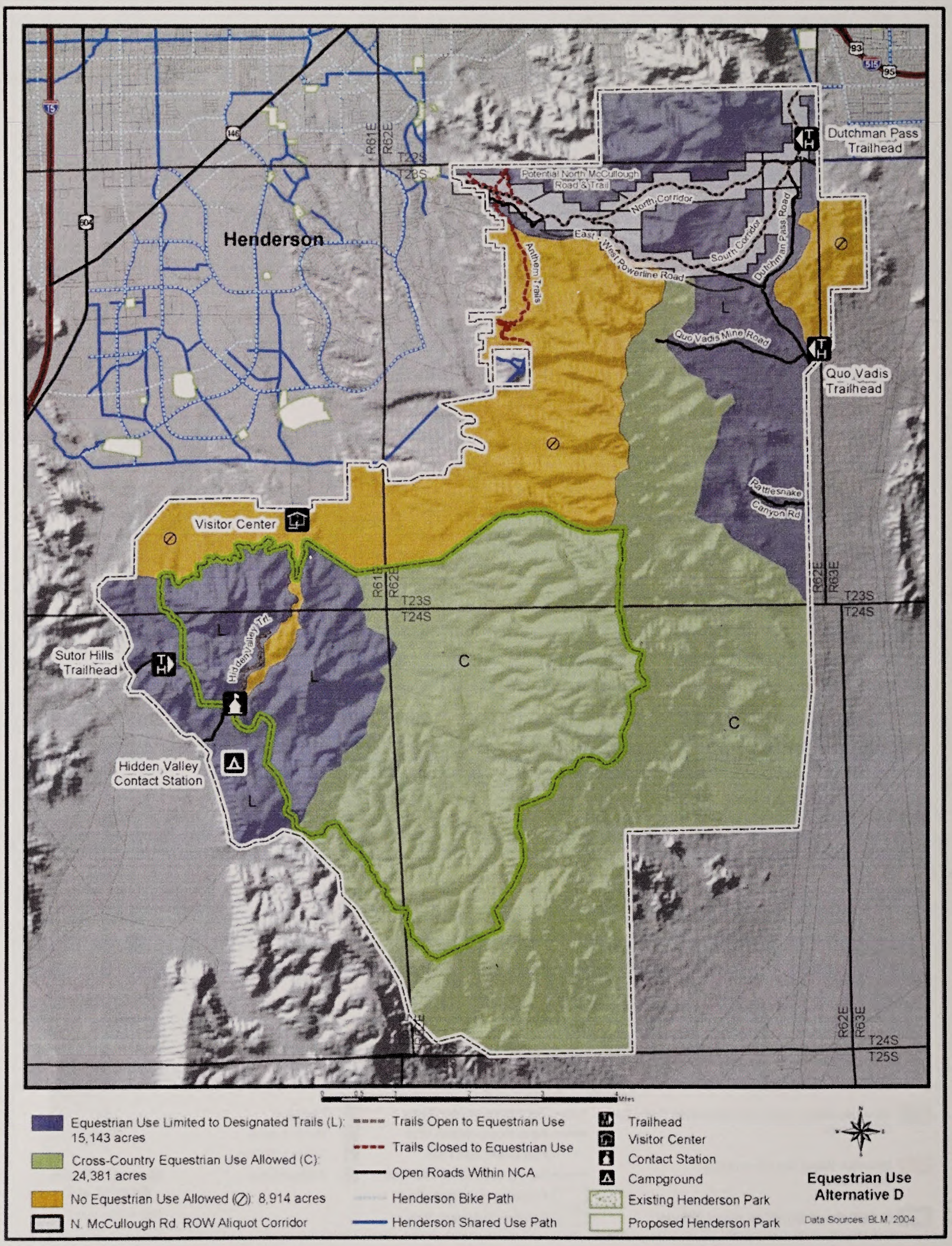


Figure 2.28. Hiking (Alternative D)



Hiking/Equestrian Use/Mountain Biking Areas

Same as Alternative C, the NCA would be divided into two types of hiking uses as shown in Figure 2.28, Hiking Alternative D Map. One area requires the use of designed, constructed, and designated trails and the other allows dispersed cross-country hiking. Same as Alternative C, equestrian use would be allowed only on trails in designated areas and would be open to cross-country equestrian use as shown on the Equestrian Use Alternative D Map, Figure 2.29. Same as Alternative B and Alternative C, horse feed and hay must be certified weed-free to prevent the spread of noxious and invasive weeds. Same as Alternative C, to reduce conflicts among users and to minimize resource impacts, mountain biking would be allowed on a designated system of dedicated use mountain bike trails, on designated OHV routes, and vehicle roads as shown on the Mountain Biking Alternative D Map, Figure 2.30. Mountain bikers would be required to remain on designated trails or roads.

Trails

In the areas identified as requiring designated trail use (hiking, mountain biking, and equestrian use), a trail system to optimize uses would be designed and constructed to accommodate multiple uses as appropriate. At this time, only four designated and proposed trails have been identified: the City of Henderson's North McCullough Road and Trail ROW (N-65874), the Anthem Trail System ROW (N-76312), in the Wilderness a hiking trail from the north entrance of Sloan Canyon, and a hiking trail to the Sloan Canyon Petroglyph Site from the Hidden Valley Trailhead.

Designated Trails	Activities
North access to the Sloan Canyon Petroglyph Site via wash (wash and pass alternatives)	Hiking
Proposed Trails	
North access to the Sloan Canyon Petroglyph Site via pass	Hiking
Hidden Valley Trailhead to the Sloan Canyon Petroglyph Site	Hiking and equestrian use
Anthem Trail System (N-76312)	Hiking, mountain biking
North McCullough Trail (N-65874)	Hiking, equestrian use, mountain biking

Trails would be added to the system as need arises provided the design and construction of a new trail would not cause irreparable impacts to sensitive cultural, natural resources, and/or wilderness characteristics. Same as Alternative C, site-specific resource conditions would be considered when selecting trail locations and designing trail features. Additional trails would be designed, constructed, and maintained for resource protection and to enhance opportunities for primitive recreation.

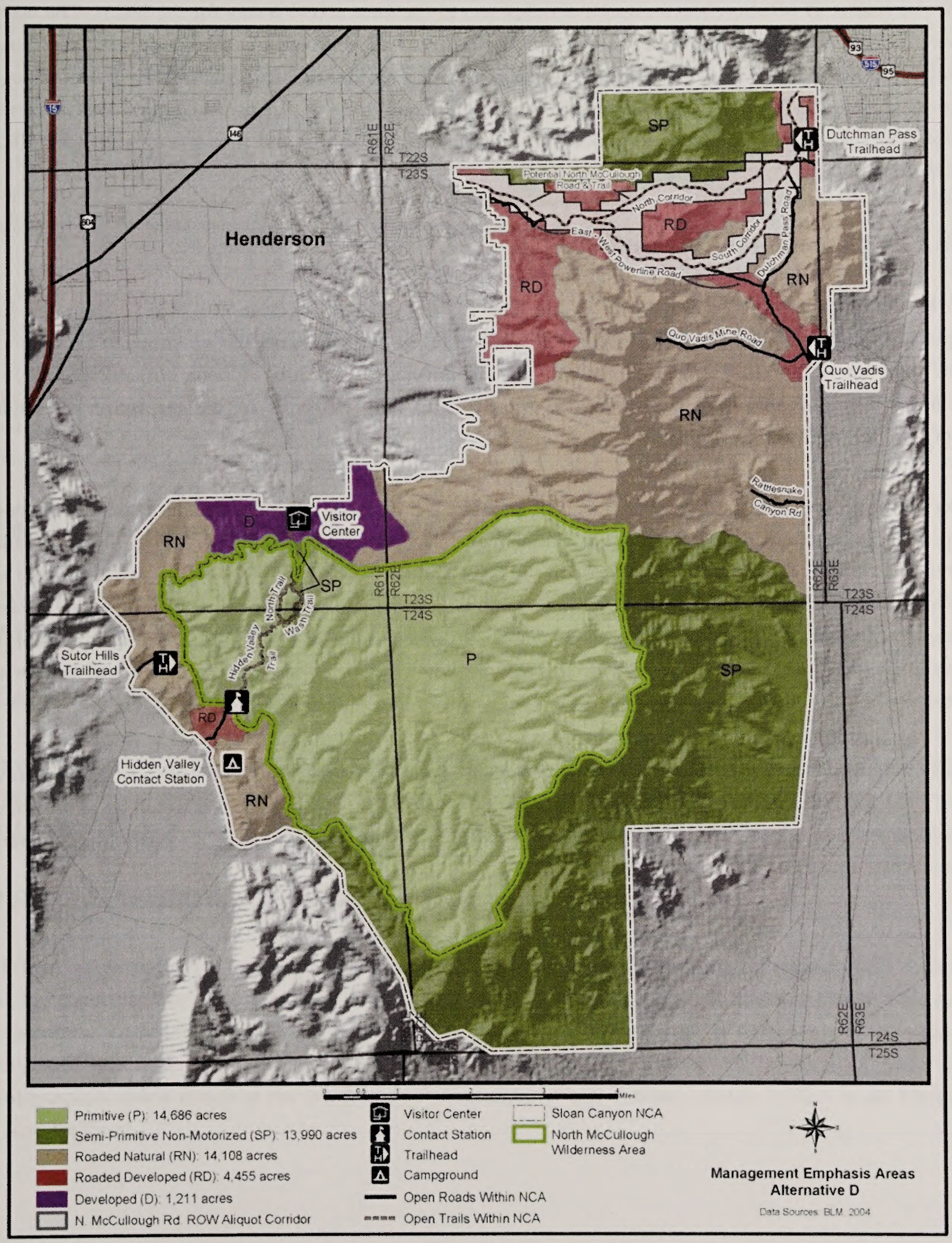
Activity	Allowed		Prohibited
	Must Stay On Trails	Cross-Country	
	• Dutchman Pass Road • Quo Vadis Mine Road • Rattlesnake Canyon Road		
OHV Use (Figure 2.31)	On designated roads or routes.		92% of the NCA • Remainder of NCA • North McCullough Wilderness Area
Camping/Campfires (Figure 2.32)	62% of the NCA (Dispersed camping and at campground)		38% of the NCA
Rock Climbing	98% of the NCA (Power drills prohibited in the Wilderness)		• Sloan Canyon Petroglyph Site and its northern access • Designated Sensitive Resource Areas
Dogs	98% of the NCA		• Sloan Canyon Petroglyph Site and its northern access • Designated Sensitive Resource Areas
Geocaching	None		100% of the NCA
Recreational Target Shooting	None		100% of the NCA
Rockhounding	98% of the NCA		• Sloan Canyon Petroglyph Site • Designated Sensitive Resource Areas

Table 2.7. Recreation Management Actions—Alternative D

Activity	Allowed		Prohibited
	Must Stay On Trails	Cross-Country	
Hiking (Figure 2.28)	32% of the NCA Designated Trail • Sloan Canyon Visitor's Center to the Sloan Canyon Petroglyph Site (wash alternative) Proposed New Trails*: • Sloan Canyon Visitor's Center to the Sloan Canyon Petroglyph Site (pass alternative) • Hidden Valley Trailhead to the Sloan Canyon Petroglyph Site • Anthem Trail System • North McCullough Trail	68% of the NCA	None
Equestrian Use (Figure 2.29)	31% of the NCA Proposed new trails*: • North McCullough Trail	50% of the NCA	19% of the NCA
Mountain Biking (Figure 2.30)	21% of the NCA Proposed new trails*: • North McCullough Trail • Anthem Trail System Designated Roads*: • North McCullough Road	None	• Within North McCullough Wilderness Area

* In the future, more trails and roads could be added or designated.

Figure 2.27. Management Emphasis Areas (Alternative D)



2.9.1 Management Emphasis Areas (Alternative D)

The Alternative D MEAs reflect increased development at the main access points for the NCA. The north access to Sloan Canyon around the potential visitor center would be zoned as Developed and the Sloan Canyon Petroglyph Site would be zoned Semi-Primitive Non-Motorized. In addition, North McCullough Road and Trail ROW (N-65874), Dutchman Pass Trailhead, and the Quo Vadis Trailhead would be zoned Roaded Developed. The MEA zones objectives are presented Section 2.3 and shown on Figure 2.27, MEA Alternative D Map.

2.9.2 Recreation (Alternative D)

To be flexible and responsive to probable increases in user demands, recreation would be managed for experiences and beneficial outcomes based on the objectives of the MEA zones as described in Section 2.3. The character of the zones ranges from primitive to developed in terms of their physical, social, and administrative attributes, and these attributes would define the character of the respective recreation opportunities (e.g., activities available).

Recreation actions under the Alternative D provide the greatest amount of developed recreation opportunities in comparison to the other alternatives. The recreation actions and opportunities would continue to evolve as user demands increase in the NCA and the Wilderness. Monitoring would be used to document the NCA's visitation and resource conditions baseline and would help to determine any future changes (Appendix C, Recreation Monitoring Plan). A system such as LAC would be used to establish thresholds for future actions. In addition, recreation would be managed for experiences and beneficial outcomes based on the description of the MEA zones as described in Section 2.3.

Under Alternative D, recreational opportunities include hiking, equestrian use, mountain biking, and OHV uses. The following actions provide general recreation management guidelines, which would be refined into specific management criteria based on use and resource condition monitoring. Table 2.7 provides a summary of the Alternative D recreation management actions.

Same as Alternative B, visitors would be educated to be sensitive to raptor nesting areas from April through May and bighorn lambing areas from January to May. Construction of trails, facilities, or ROWs would be seasonally restricted within an appropriate distance of occupied raptor nesting sites. Trails would be closed using seasonal or small area closures on a case-by-case basis to protect wildlife species during critical life periods. Distance and seasonal restriction would be determined on a case-by-case basis and could depend on the species involved, natural topographic barriers, and line-of-sight distances.

Same as Alternative B, feral animals would be removed from the NCA by coordinating with appropriate local, State, and Federal agencies on the trapping and transfer of populations of animals posing a threat to wildlife health or human health and safety. Bird feeders would be prohibited within the NCA.

Same as Alternative B, Special Status Species habitat would be maintained and protected to ensure suitable habitat conditions and viable populations. Disturbance or development would be avoided in areas of Special Status Species potential habitat. Disturbance or development would be mitigated in areas of Special Status Species habitat discovered during pre-activity site-specific surveys. BLM would emphasize scientific research and monitoring of Special Status Species and encourage research partnerships with organizations such as universities and other educational groups.

2.8.13 Livestock Grazing (Alternative C)

Same as Alternative B, placement of salt and mineral supplements and new range improvements would not be allowed within the NCA.

2.8.14 Geology and Soils (Alternative C)

Intrusive geologic research would be allowed in the NCA by permit to ensure regulatory compliance. Intrusive geologic research would be prohibited in the Sloan Canyon Petroglyph Site and its northern access and appropriate restrictions would apply in the remainder of the Wilderness.

2.9 ALTERNATIVE D: EMPHASIZE DEVELOPED USES

This alternative focuses on developed uses in the NCA and Wilderness. Recreational opportunities such as hiking, equestrian use, mountain biking, and OHV uses would be provided to a greater extent with less restrictions. In addition, the NCA could experience more development than in Alternative C, with more designated trailheads and facilities. The Sloan Canyon Petroglyph Site would be accessed from the multipurpose visitor center at the north end of Sloan Canyon and a visitor contact station at the Hidden Valley Trailhead.

- Zone 3 (Roaded Natural and Developed MEAs)—Conduct restoration if the surface disturbing activity may have a long-term impact on natural vegetation community processes or if it could have a long-term impact on local species populations.

Restoration projects would take priority in zones 1 and 2 to restore or improve conditions in native plant communities (Appendix K). Disturbed areas in the North McCullough Wilderness Area would be restored after completion of a minimum requirement/minimum tool analysis. Outside the Wilderness, casual collection of vegetation to further the objectives of the NCA would be allowed. However, commercial collection of vegetation would be prohibited throughout the NCA.

Same as Alternative B, sensitive and Special Status Species habitats would be protected to ensure suitable habitat conditions and population viability. In addition, scientific research and monitoring of Special Status Species would be encouraged. BLM would develop partnerships with organizations such as universities and other educational groups to facilitate research on and monitoring of Special Status Species. Same as Alternative B, any developed landscaping would use only plant species native to the NCA.

Same as the No Action Alternative and Alternative B, sites proposed for disturbance would be evaluated for the presence of Special Status Plant Species. In addition, surface disturbing activities within known locations of federally listed plant species would be avoided, if feasible.

2.8.12 Wildlife Management (Including Special Status Species [Alternative C])

To better understand the NCA's wildlife, BLM would implement monitoring surveys for appropriate species and wildlife observation studies would be allowed in the NCA, as long as the study does not harass species. Same as Alternative B, interpretive information designed to emphasize the potential effects of recreation use on wildlife would be developed and distributed within the NCA.

Designation and construction of trails, facilities, and ROWs would be limited within known lambing areas of bighorn sheep. Surface disturbing activities would be limited within known lambing areas from January through May. Trail construction would be avoided in areas of known bighorn sheep movement between the North and South McCullough Mountains.

Permits for wildlife specimen collection would be issued for scientific purposes on a case-by-case basis. All applicants who intend to collect specimens of listed species would be required to obtain additional permits from NDOW and USFWS.

Commercial collection of reptiles would be prohibited within the NCA; however, casual collection of reptiles would be allowed outside of the Wilderness. Any surface disturbing activities related to the casual collection of reptiles would be prohibited to avoid take of desert tortoise and impacts to wilderness resources.

Figure 2.26. Vegetation Disturbance Management (Alternative C)

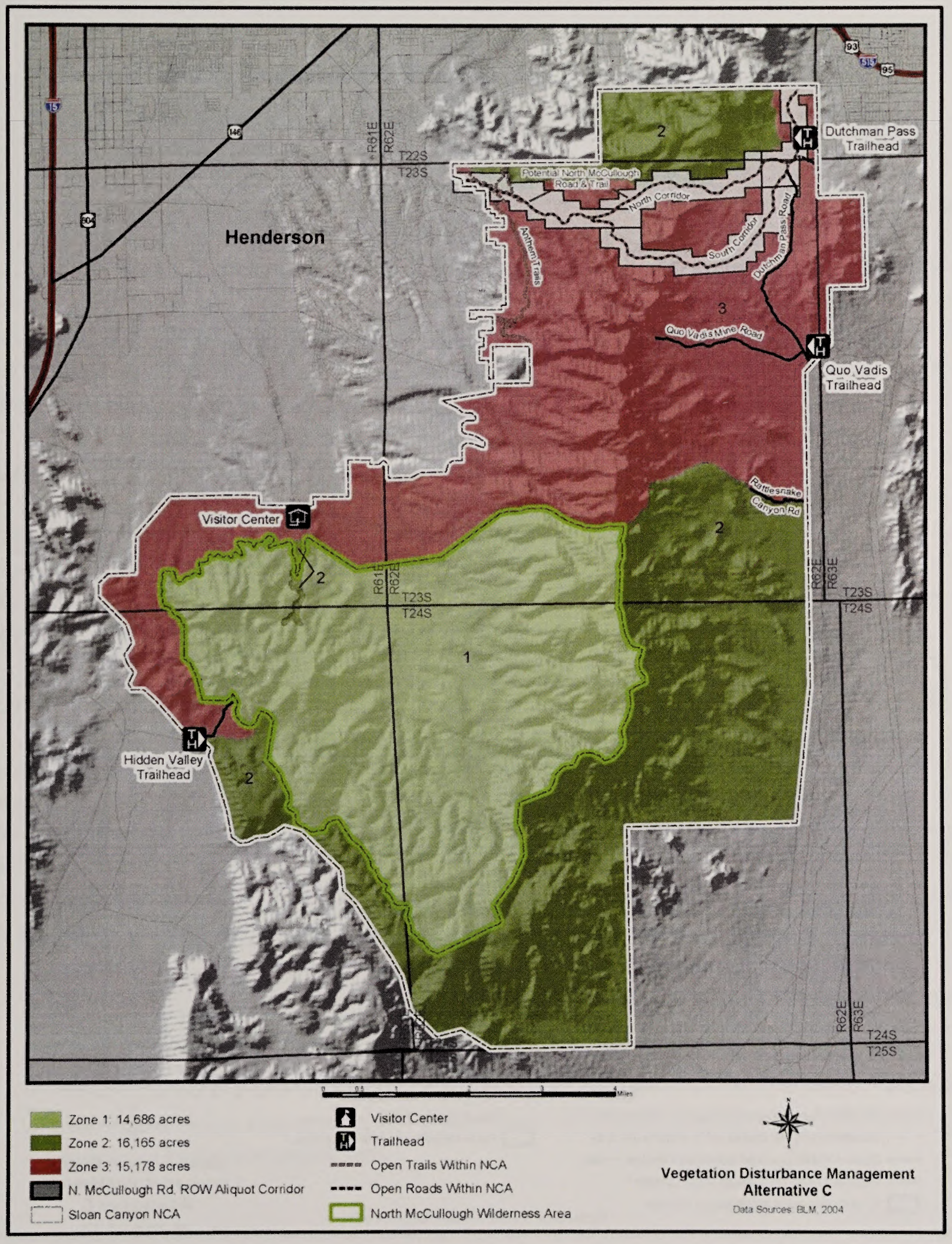
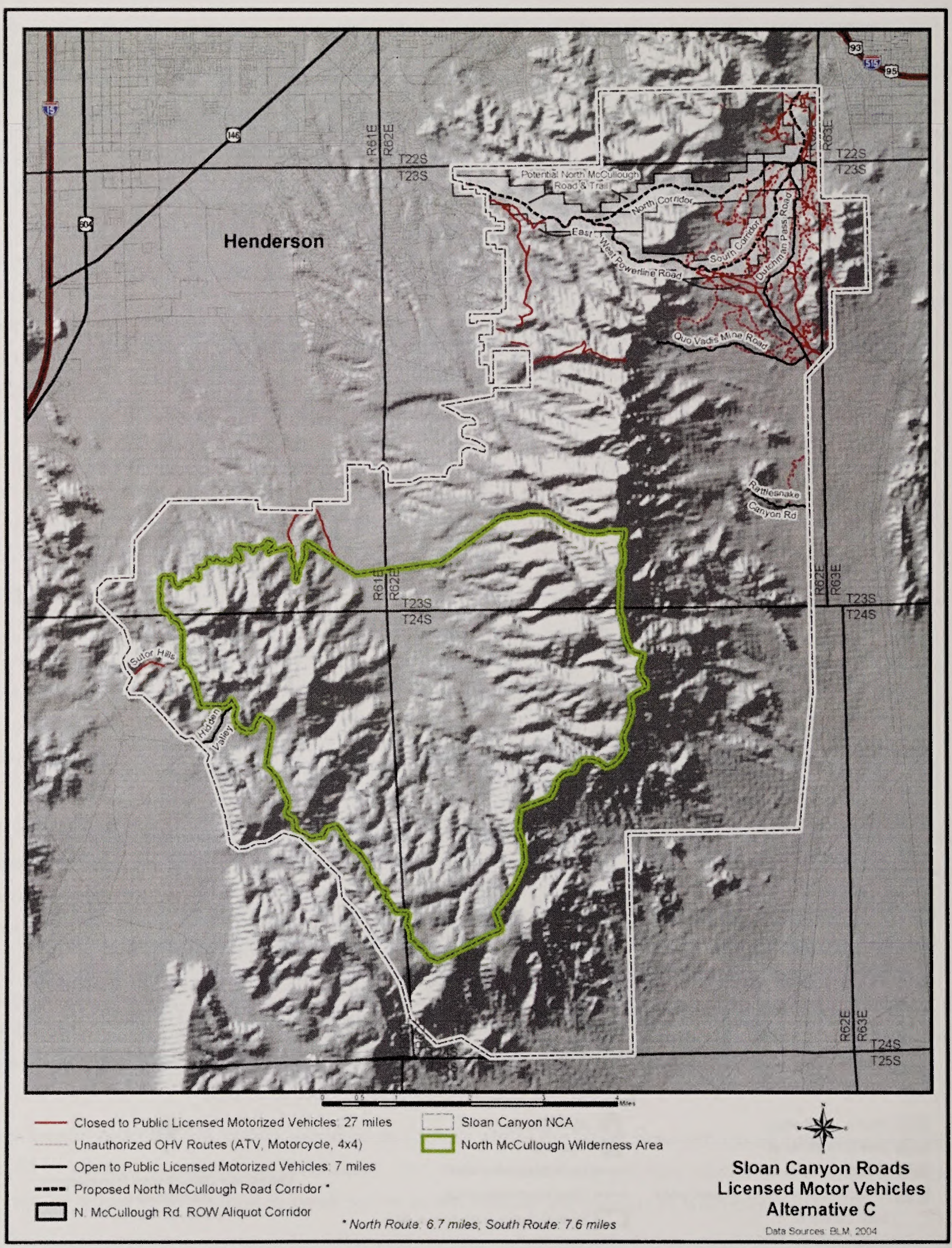


Figure 2.25. Sloan Canyon Roads, Licenses Motor Vehicles (Alternative C)



furthers the purpose of the NCA in Section 602 of the Sloan Canyon NCA Act (Figure 2.14). Evaluation criteria could include, in part:

- Direct benefit to the NCA, such as utilities to serve NCA facilities
- Maintaining or decreasing visual contrast
- Reduction of disturbed area
- Improvement in road/ROW alignments to minimize resource impacts.

Commercial filming permits could be allowed in the NCA, outside of Wilderness, with location, timing, vehicle, and crew size restrictions. Film permits would be limited to designated trails and trailheads and would not be allowed in the Sloan Canyon Petroglyph Site. Filming would be prohibited on weekends and Federal holidays. In addition, vehicles associated with the permit may not occupy more than half of the parking area capacity and would not be allowed to create new ground disturbances. The crew size would be limited to a maximum of 15 people per permit for still photography and a maximum of 15 people per permit for motion photography.

2.8.10 Transportation (Licensed Motorized Vehicles [Alternative C])

The North McCullough Road, Dutchman Pass Road, Quo Vadis Mine Road, and Rattlesnake Canyon Road would be open to the public for licensed vehicles as shown on Figure 2.25, Sloan Canyon Roads – Licensed Motorized Vehicles Alternative C Map. All other roads and routes would be closed to the public for licensed vehicle use.

2.8.11 Vegetation Management (Including Special Status Species [Alternative C])

Same as Alternative B, vegetation would be managed by restoration zones based on Alternative C MEAs to promote native plant communities and restore the plant productivity of disturbed areas through restoration. The zones would be used to promote native plant communities and restore the plant productivity of disturbed areas through restoration. The threshold of disturbance before restoring natural or improving the condition of native plant communities for each zone would be as follows and is shown on Figure 2.26, Vegetation Disturbance Management Alternative C Map:

- Zone 1 (Primitive MEA)—Conduct restoration if the surface disturbing activity may alter the natural vegetation community processes or if it reduces the viability of local species populations.

- Zone 2 (Semi Primitive Non-Motorized MEA)—Conduct restoration if the surface disturbing activity may have a short-term impact on natural vegetation community processes or if it reduces the viability of local species populations.

Northern Entrance of Sloan Canyon

A conceptual model for a visitor center is presented here for analysis purposes. The total disturbed area, including a 2-acre parking area, was assumed to be 20 acres. The areas and activities for the visitor center are based on input received from the public and cooperating agencies.

A visitor center could be constructed near the NCA boundary at the north entrance to Sloan Canyon. The visitor center could provide NCA management with office space, serve as one of the access and control points for the Sloan Canyon Petroglyph Site, and be the base of operations for patrols and rangers. The central theme of the visitor center could be the NCAs association with Native Americans through the Sloan Canyon Petroglyph Site and the Tribes who have been cooperating agencies in this Draft RMP/EIS. The Tribes would be invited to continue association with the NCA as interpretative media is developed and participate in the design of the visitor center, which could include design elements to facilitate ongoing Native American use and/or events.

The visitor center could include space for BLM staff, law enforcement, volunteers, and visiting scholars and researchers, and a permit window or desk. The visitor center could have facilities for maintenance and storage, areas for interpretive use, outdoor amphitheater, classrooms, research facilities, book store/gift shop, meeting rooms, and concessions. A business plan could be developed for the NCA that would explore income-generating facilities, including space in the visitor center to be leased for food/restaurant facilities and the viability of day rentals of space for meetings or small corporate retreats.

Hidden Valley Trailhead

A gravel parking lot for 15 cars, an interpretive kiosk, and a vault toilet would be constructed inside the NCA boundary. For analysis purposes, the total disturbed area is assumed to be 10,500 square feet.

Dutchman Pass Trailhead

A gravel parking lot for 30 cars, an equestrian staging area, an interpretive kiosk, and a vault toilet would be constructed near the northeastern boundary of the NCA at Dutchman Pass. For analysis purposes, the total disturbed area was assumed to be 22,500 square feet.

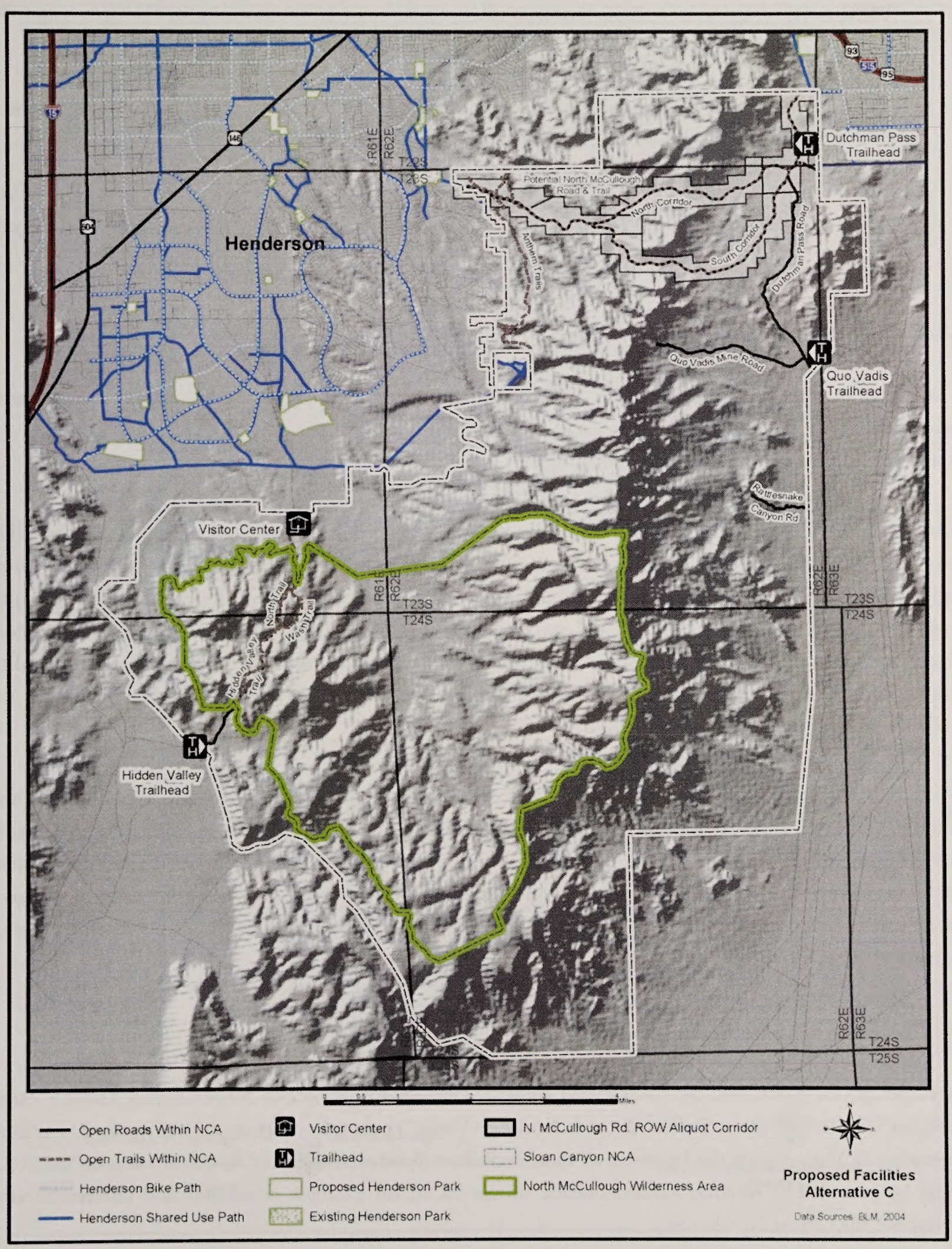
Quo Vadis Trailhead

A ½ acre gravel parking lot would be constructed with an interpretive kiosk and vault toilet.

2.8.9 Lands and Realty (Alternative C)

Same as Alternative B, outside the Wilderness, applications for new linear or site-type ROWs, or any amendments to existing ROWs, would be considered on a case-by-case basis within the NCA, if the action

Figure 2.24. Proposed Facilities (Alternative C)



Same as Alternative B, the following VRM class definitions would be used:

- **VRM I**: To preserve the existing character of the landscape. Authorized actions may not modify the existing landscape or attract the attention of casual viewers.
- **VRM II**: To retain the existing character of the landscape. The level of change to the characteristic landscape should be low and may not attract the attention of casual viewers.
- **VRM III**: To partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate, and may minimally attract the attention of the casual viewer.

2.8.7 Interpretation (Alternative C)

A full range of interpretive media would be provided with media visibility decreasing as the distance from developed areas increases. Stationary interpretive media would be limited to specific areas identified for interpretation and designed to reduce visual impacts.

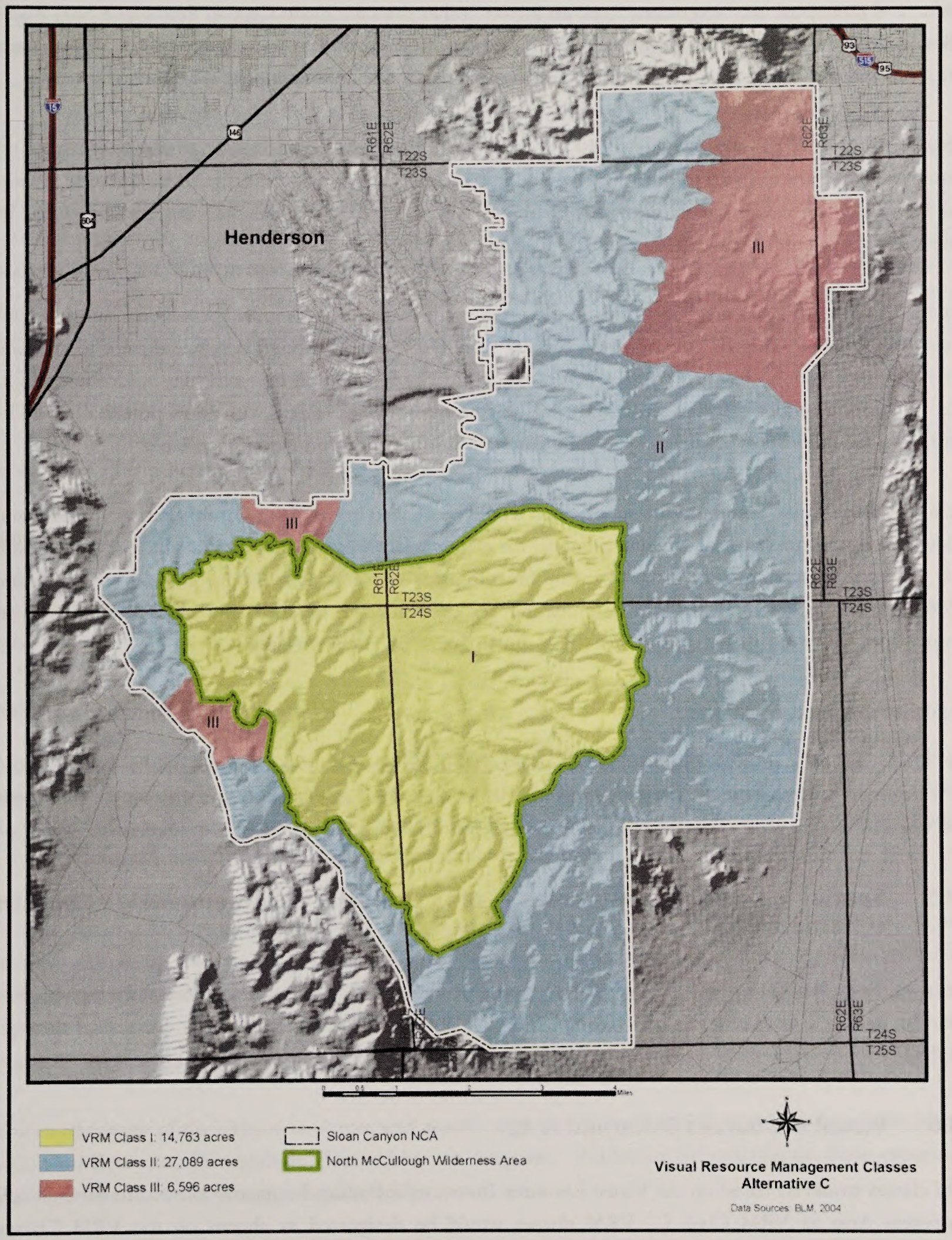
Outside of the Wilderness, the use of low profile, visually unobtrusive interpretive media would be allowed in areas of high use. There would be a focus on highly visible media at the staging areas (trailheads, visitor contact station, visitor center.) Inside the Wilderness, limited amounts of small signage and interpretive media could be located within the Sloan Canyon for the purposes of resource and wilderness protection. Access signage in the Wilderness indicating that access to the Sloan Canyon Petroglyph Site is restricted to permitted access or guided tours only beyond this point would be placed at various points including, the south end of the Sloan Canyon Petroglyph Site.

Offsite media, such as "virtual tours," would be developed to provide opportunities for education and interpretation at the visitor center for those unable to access the Sloan Canyon Petroglyph Site or other remote areas of the NCA and for use at times when weather, such as extreme summer heat, or other conditions limit normal access. Such media would serve the dual purpose of reducing impacts to resources and enhancing wilderness experience. Same as Alternative B, in general, there would be a focus on the use of interactive virtual interpretation media, such as Web sites.

2.8.8 Facilities (Alternative C)

Developed access points into the NCA would include the northern entrance of Sloan Canyon, Hidden Valley Trailhead, Dutchman Pass Trailhead, and the Quo Vadis Trailhead. Figure 2.24, Proposed Facilities Alternative C Map, depicts the locations of these facilities. Same as Alternative B, information on the NCA would be provided at facilities located outside of the NCA, for example at schools and libraries located throughout the City of Henderson.

Figure 2.23. Visual Resource Management Classes (Alternative C)



Approximately half of the rockshelters in the NCA would be assigned to the conservation for future and traditional use management categories. The remainder of rockshelters would be assigned to the scientific, public, and traditional use categories. Rock art locales (other than the Sloan Canyon Petroglyph Site) would follow a similar pattern, with half assigned to the conservation for future and traditional use management categories and the remainder to the conservation for future scientific and traditional use categories.

Same as Alternative B, approximately half of other prehistoric and historic sites would be assigned to conservation for future and traditional use, while the remaining sites would be assigned to scientific, public, and traditional use management categories. Same as Alternative B, ineligible sites and isolates would be assigned to the scientific, and experimental use management categories.

Same as Alternative B, in areas identified as having a medium to high potential for cultural resource sites (Duke et al 2004), a Class III cultural resources inventory (100 percent) would be required prior to any land disturbing undertaking. For areas with a low potential density for cultural resource sites, a reconnaissance-level inventory would be required prior to the land disturbing activities. Areas with a low potential would be considered for elimination of inventory requirements when sufficient information is available.

Same as Alternative B, maximum fire suppression would be utilized in the Sloan Canyon Petroglyph Site, and Wilderness areas with a high or medium potential for cultural resources would utilize flexible fire suppression with a cultural resource advisor assigned to the fire. In areas with low potential for cultural resources, fire control would be discretionary with no cultural resource advisor required and actions would be in conformance with the *Fire Management Plan* (BLM 2004h) and wilderness limitations.

Sloan Canyon Petroglyph Site

The Sloan Canyon Petroglyph Site would be assigned to the traditional, conservation, public, and scientific use categories. Management actions related to the cultural resource sites would be within the limits prescribed by and the Wilderness Management Plan and the Clark County Act Title II ("Wilderness Areas").

2.8.5 Special Designations—Areas of Critical Environmental Concern (Alternative C)

The Sloan Rock Art District ACEC designation would be eliminated and the Sloan Canyon Petroglyph Site would be managed to ensure regulatory compliance and the management prescriptions established through this RMP.

2.8.6 Visual Resources (Alternative C)

VRM classes would be based on the Visual Resource Inventory including designating the North McCullough Wilderness Area as VRM Class I. VRM classes would be designated as shown on the VRM Classes Alternative C Map, Figure 2.23.

Other Recreation Use

Bouldering and traditional rock climbing (no permanent anchors) would be allowed in the Wilderness outside of designated sensitive resource areas and the Sloan Canyon Petroglyph Site and its northern access. Rockhounding would be allowed in the Wilderness if use authorizations are obtained. Same as Alternative B, geocaching would be prohibited.

Wilderness Signage and Improvements

Same as Alternative B, interpretive and administrative signs, for example trailhead signage and visitor registers would, in general, be located on high-use access routes outside the Wilderness boundary. Trailhead signage located outside the Wilderness would consist of low-profile and natural color signs and include pertinent information, such as route details, maps, and visitor information. Wilderness boundary signage would be installed at all known and potential access routes, visitor use areas, and at "line of sight" distances along the entire Wilderness boundary.

Minimum permanent improvements would be allowed in the Wilderness only for the purpose of resource protection and enhancement of wilderness values.

Wilderness Soundscape

Same as Alternative B, soundscapes within the Wilderness would be maintained at or below baseline ambient noise levels established through acoustical monitoring.

Wilderness Disturbance Restoration

All vandalism and illegal dumping within the Wilderness would be removed or repaired using nonmechanized hand tools. Existing disturbances and/or alterations such as two track ways, rock dam, and dug well within the Wilderness would be restored within 3 years of the ROD using appropriate resources determined through a minimum requirement/minimum tool analysis for each rehabilitation project.

Same as Alternative B, noxious and invasive weeds would be managed in accordance with the *Partners Against Weeds – An Action Plan for BLM* (BLM 1996) initiative for weeds. Any restoration activities would be managed to ensure full regulatory compliance.

2.8.4 Cultural Resources (Alternative C)

The management of the cultural resources sites would be guided by Appendix D, which contains elements of a Cultural Resources Management Plan and by use categories. Additional information on these categories, and Appendix D, can be found in Section 2.5.3.

Recreation Management in the Wilderness

Hiking/Equestrian Use

Cross-country hiking would be allowed throughout the Wilderness, except for the north and south access to the Sloan Canyon Petroglyph Site, which must be on designated trails. The entire Wilderness would be available for cross-county equestrian use, except the Sloan Canyon Petroglyph Site. Horse feed and hay must be certified weed-free to prevent the spread of noxious and invasive weeds.

Trails

Wilderness trails would be added to the system as need arises, provided the design and construction of a new trail would not cause substantial impacts to sensitive cultural, natural resources, and/or wilderness character. Site-specific resource conditions would be considered when selecting trail locations and designing trail features. The development of improvements (for example, trails) near wildlife water would be prohibited within a ¼ mile area. Minimal permanent improvements would be allowed only for the purposes of resource protection measures, enhancement of wilderness values, and erosion control and only after conducting a minimum requirements/minimum tool analysis.

New social trails resulting in resource damage within the Wilderness (not desired for future designation, modification, or use) would be restored after completing a minimum requirement/minimum tool analysis. Low profile, wilderness-appropriate, "closed" signs would be installed on social trails. Associated recreation use would be dispersed to other locations using area closures, barriers, and visitor information. The visible portions of these social trails would be restored using nonmechanized means and native vegetation. The non-visible portions of the social trails would be left to restore naturally.

Dogs

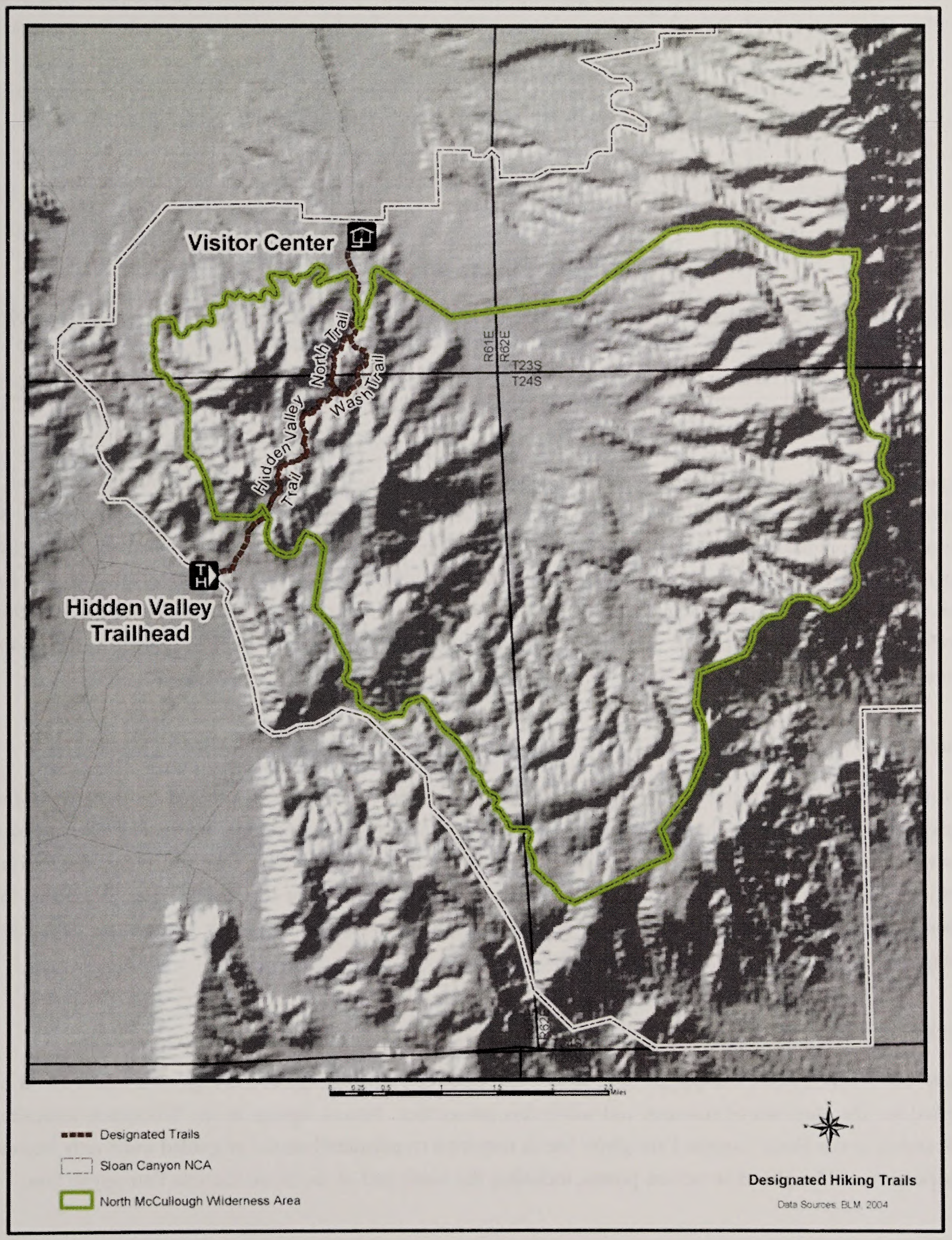
Leashed dogs would be allowed within the Wilderness except in the Sloan Canyon Petroglyph Site and its northern access and designated sensitive resource areas. Dog feces must be immediately picked up and packed out.

Nighttime Use

Primitive, dispersed camping would be allowed within the Wilderness, except in the Sloan Canyon Petroglyph Site. No camping sites, water, or other amenities would be provided, and campers would have to be self-sufficient. Campfires made only at camping sites, using fire pans or fire blankets would be allowed, and fire waste products would be packed out. Campfire rings would not be allowed in the Wilderness.

The Sloan Canyon Petroglyph Site would be designated for day-use only, with fires, camping, and nighttime use prohibited. Exceptions to this may be allowed only under special circumstances and with the approval from the Sloan Canyon NCA or BLM Las Vegas Field Office Manager.

Figure 2.22. Designated Hiking Trails



	Northern Access	Southern Access
Self-Guided Tours	• During low use times (e.g. weekdays) with permit from the multipurpose visitor center or ranger • Issue total of only 25 permits per hour • Experience a interpretative presentation/briefing on appropriate visitor use and site etiquette • Visitation allowed during visitor center operating hours	• During low use times (e.g. weekdays) with permit from a ranger • Issue total of only 25 permits per hour • Experience a interpretative presentation/briefing on appropriate visitor use and site etiquette • Visitation allowed during visitor center operating hours

Access to and use of the Sloan Canyon Petroglyph Site would be confined to the canyon bottom and a limited number of designated trails. The main access to the Sloan Canyon Petroglyph Site would be controlled through a multipurpose visitor center located near the NCA boundary at the northern end of the Sloan Canyon wash. Rangers and other BLM staff would patrol the Sloan Canyon Petroglyph Site area for visitors entering from points other than the visitor center and would either deny access based on visitation levels or issue a visitation permit. Use of the Sloan Canyon Petroglyph Site would be limited to the visitor center's operational hours, which would be determined by BLM before the center is opened.

Trails

To minimize resource impacts, trails from both the north and south entrances would be designated and constructed (Figure 2.22). In the Wilderness, there would be three trail options: traditional hike in Sloan Canyon wash or a newly constructed trail which forks off of the traditional wash hike and avoids the rockfall portion of the wash trail. No improvements would be made or offered at the rockfall site. Access to the Sloan Canyon Petroglyph Site from south end of the canyon would be by permit on low-use days via a designated 1.5-mile trail from the Hidden Valley Trailhead.

Signage

Inside the Sloan Canyon Petroglyph Site, limited amounts of small signage and interpretive media could be located for the purposes of resource and wilderness protection. Access signage in the Wilderness indicating that access to the Sloan Canyon Petroglyph Site is restricted to permitted access or guided tours only beyond this point would be placed at various points, including the south end of the Sloan Canyon Petroglyph Site.

During periods of lower use (for example, weekdays), visitors may go the Sloan Canyon Petroglyph Site unaccompanied by a BLM-sponsored guide if they obtain a permit. Self-guided tour permits would be issued from the visitor center at the north entrance to Sloan Canyon or from a roving ranger or at the Hidden Valley Trailhead. A total of no more than 25 permits per hour would be issued for self-guided tours. When obtaining a permit, all nonguided canyon visitors would experience an interpretive presentation on appropriate visitor use and site etiquette at cultural resources sites and Wilderness. At the visitor center, this could include an interpretive video, or a static display; but at the Hidden Valley Trailhead or in backcountry locations, it would likely be an informal presentation at the time of permitting or brochures and kiosk information. Table 2.6 summarizes the Sloan Canyon Petroglyph Site management actions for Alternative C.

Table 2.6. Sloan Canyon Petroglyph Site Management Actions—Alternative C

	Northern Access	Southern Access
Approach (Figure 2.22)	2 Designated trails, approximately 1 mile • In wash • Higher trail to avoid rockfall	Designated trail from the Hidden Valley Trailhead – approximately 1.5 miles.
Access Points	Multipurpose visitor center	Hidden Valley Trailhead
Guided Tours	• Required during high use (e.g. on weekends and holidays) • 1 tour at site at one time • 20 people in each guided tour • Guided organized groups of 10-35 with prior reservations	No access during high use times

2.8.3 North McCullough Wilderness Area (Alternative C)

Under Alternative C, Wilderness management actions provide opportunities for primitive and unconfined recreation opportunities, such as hiking and equestrian use, while providing a level of management necessary to protect sensitive resources and wilderness characteristics. Because of its undeveloped nature, recreation management of the Wilderness, including the Sloan Canyon Petroglyph Site, is intended to be flexible and responsive as visitation and resource conditions change over time.

Under the No Action Alternative, a Wilderness Management Plan would be prepared as required by BLM Manual 8560 and 8561. A Draft Wilderness Management Plan is included in Appendix I, and it will be finalized based on the completed RMP. The Wilderness Management Plan will guide day-to-day activities within the Wilderness.

Visitation

Same as Alternative B, the Wilderness Management Plan, in part, would be used to establish visitor numbers, group size, and seasonal and area limits so that wilderness characteristics, including solitude, are not impacted beyond an acceptable limit. These characteristics would be maintained at or below a threshold established after baseline information has been collected and analyzed.

Same as Alternative B, visitation could be limited to minimize social trails and crowding and to reduce impacts to vegetation, soils, cultural resources, and wildlife. Some or all of the following management techniques could be used to maintain wilderness characteristics and protect resources: number people at one time, size of party, timing of visits, daily visitation limits, permits, reservations, guides, and self-guided tours.

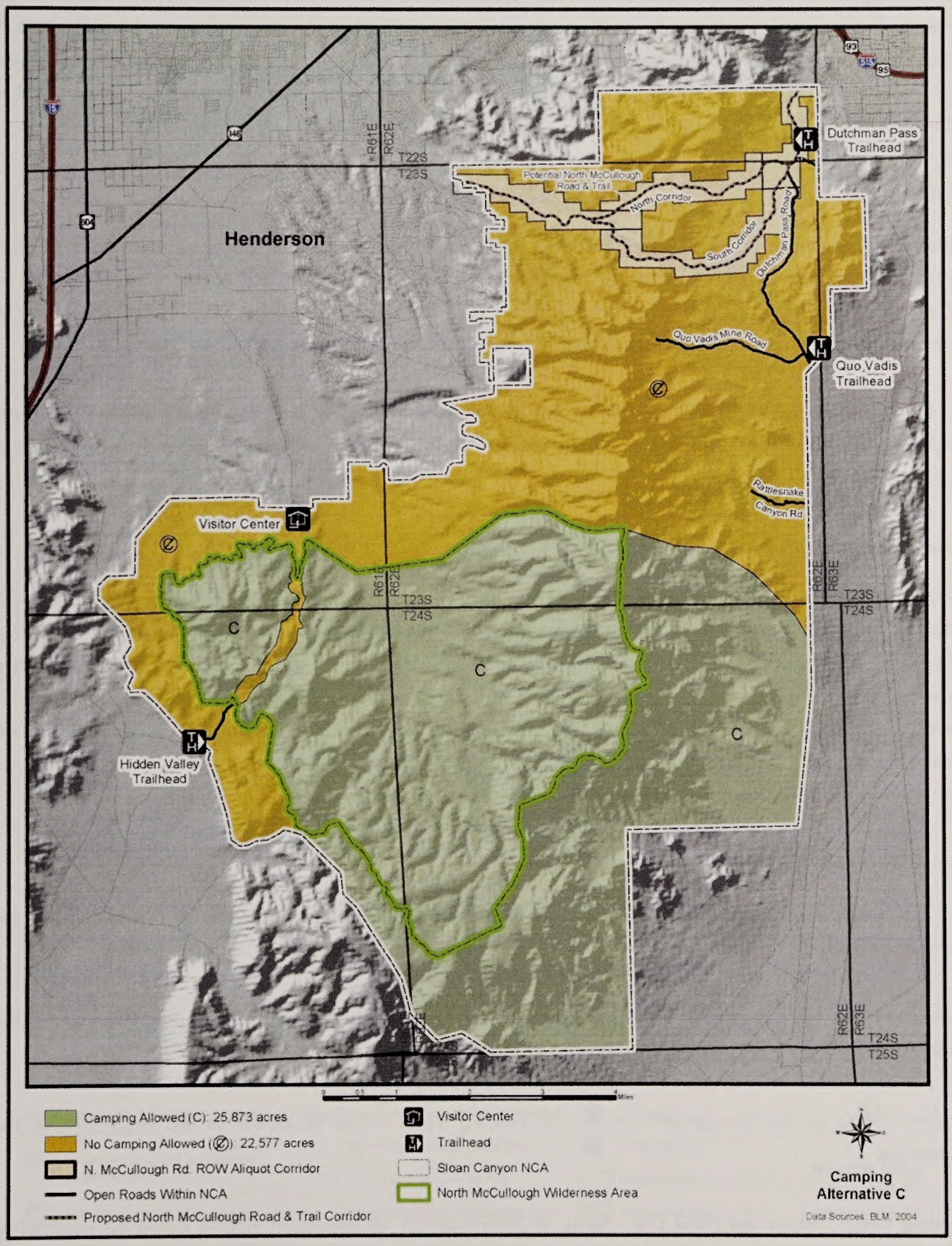
If necessary, the visitation thresholds could be adjusted based on monitored changes to wilderness characteristics. Same as Alternative B, separate thresholds would be established for the Sloan Canyon Petroglyph Site.

Sloan Canyon Petroglyph Site Management

Once residential development on the western side of the NCA is complete, the Sloan Canyon Petroglyph Site will be just a short distance from a large urban population. To manage the potential high number of visitors, to protect the sensitive cultural and natural resources, and to protect wilderness characteristics, detailed management actions were developed.

Visitors to the Sloan Canyon Petroglyph Site during periods of high use such as weekends and holidays, must join a BLM-guided tour. No more than one guided group, of no more than 20 people, would be allowed in the Sloan Canyon Petroglyph Site at one time. With prior reservations, organized groups of 10 to 35 people would be allowed to visit the Sloan Canyon Petroglyph Site accompanied by a BLM-sponsored guide.

Figure 2.21. Camping (Alternative C)



Dogs

Leashed dogs would be allowed within the NCA except in the Sloan Canyon Petroglyph Site and its northern access and designated sensitive resource areas. In "trail-only" areas, dogs must be on the trails, and in dispersed use areas, dogs must remain leashed. Dog feces must be immediately picked up and packed out. Low profile, natural color disposal centers and bags for dog waste would be placed and maintained at trailheads outside of the Wilderness.

Nighttime Use

Primitive, dispersed camping would be allowed in the areas shown on the Camping Alternative C Map, Figure 2.21. No camping sites, water, or other amenities would be provided and campers would have to be self-sufficient. Campfires made only at camping sites, in fire pans, or with use of fire blankets would be allowed. Campfire rings would not be allowed. Fire waste products must be packed out of the NCA.

The Sloan Canyon Petroglyph Site would be designated for day-use only, with fires, camping, and nighttime use prohibited. Exceptions to this may be allowed only under special circumstances and with the approval of the Sloan Canyon NCA manager.

Other Recreation Use

Bouldering and traditional rock climbing (no permanent anchors) would be allowed throughout the NCA including the Wilderness, except in the Sloan Canyon Petroglyph Site and its northern access, and in designated sensitive resource areas. Rockhounding would be allowed in the NCA, except in the Sloan Canyon Petroglyph Site and its northern access if a use authorization is obtained. Same as Alternative B, geocaching and all forms of recreational target shooting, including, but not limited to, firearms, bows, crossbows, and paintball guns would be prohibited. Law enforcement activities and hunting activities, in conformance with State of Nevada laws and regulations, would be allowed.

Special Recreational Permits

The management of SRPs would be managed to ensure regulatory compliance and would include the following policies:

Competitive Use – Same as No Action Alternative, competitive SRPs would be issued in the NCA outside the Wilderness.

Vending - Same as the No Action Alternative, vending SRPs would be issued in the NCA outside the Wilderness.

Organized Group Activity and Event Use - Same as Alternative B, all organized groups would be required to obtain a SRP on a case-by-case basis for group activities outside the Sloan Canyon Petroglyph Site

Figure 2.20. Mountain Biking (Alternative C)

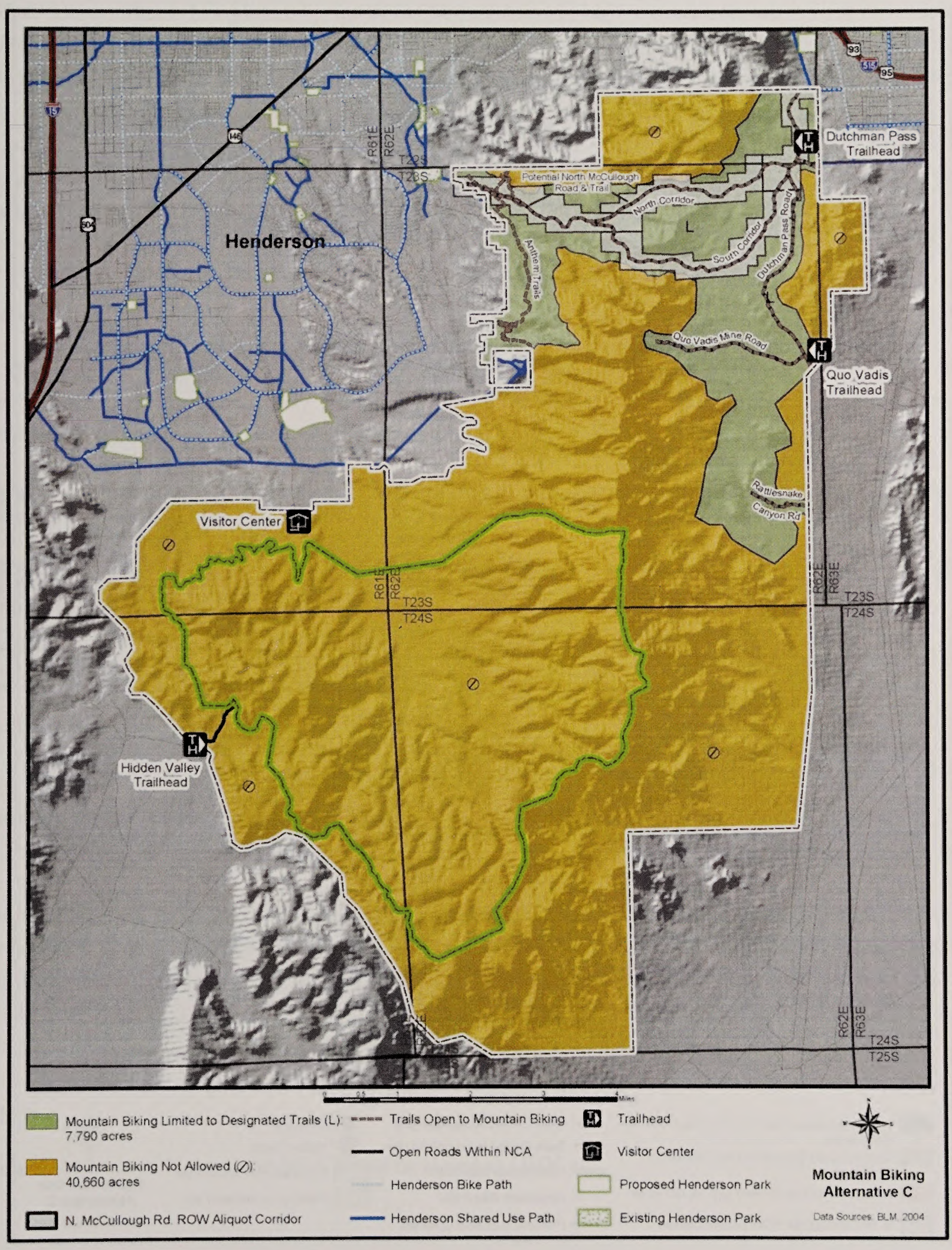
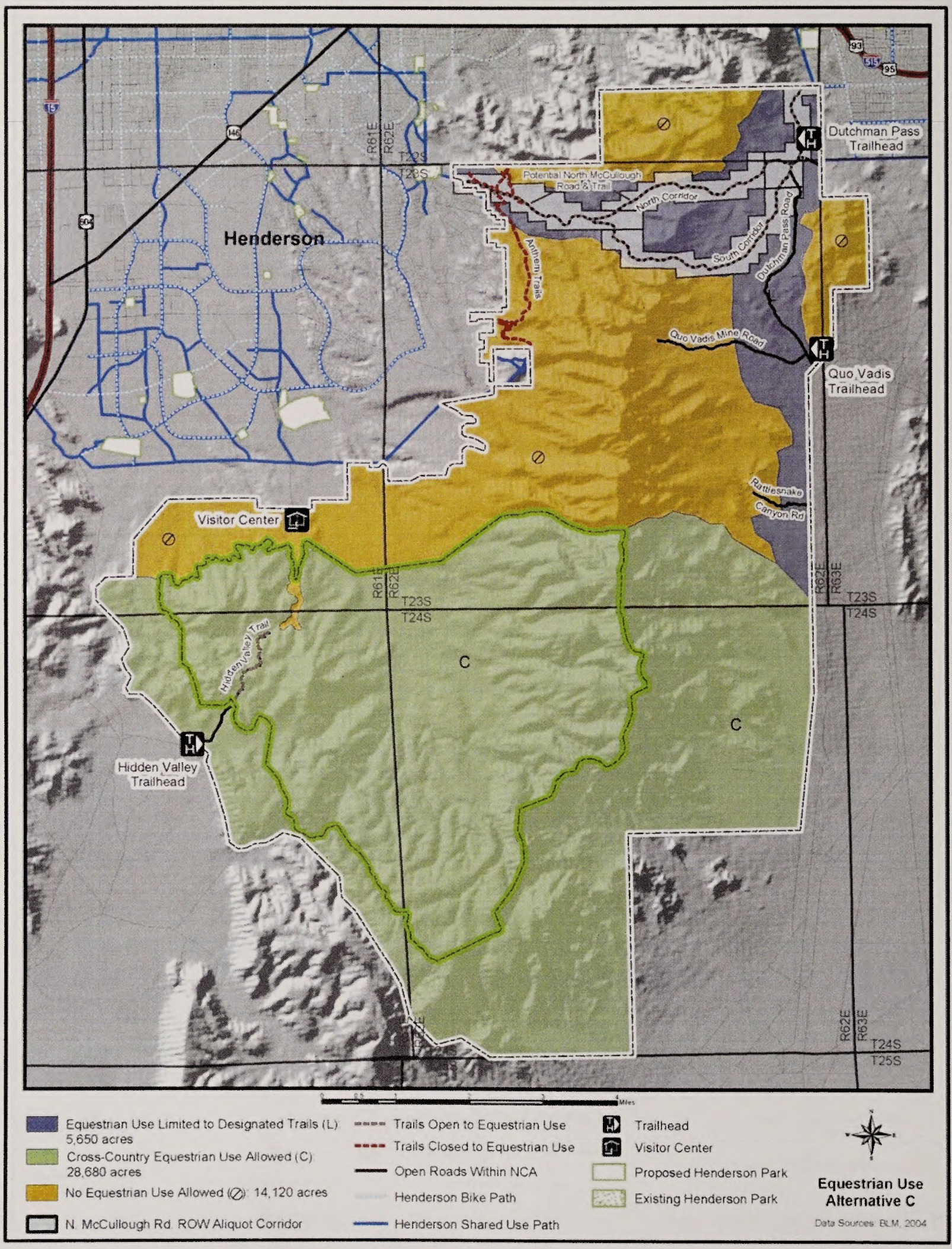


Figure 2.19. Equestrian Use (Alternative C)



only on designated trails in some areas and cross-country equestrian use allowed in other areas. Equestrian use would take place away from the populated boundary and access would be from equestrian staging areas to reduce user conflicts. In addition, horses would be prohibited in high-use areas, for example at the western interface with the City of Henderson as shown on Equestrian Use Alternative C Map (Figure 2.19). Same as Alternative B, horse feed and hay must be certified weed-free to prevent the spread of noxious and invasive weeds.

To reduce conflicts among users and to minimize resource impacts, mountain biking would be allowed only on a limited system of designated multiple use trails and on designated vehicle roads as shown on the Mountain Biking Alternative C Map (Figure 2.20).

Trails

A trail system would be designed and constructed to accommodate multiple uses (hiking, biking, and equestrian use), as appropriate. The traditional wash trail providing north access to the Sloan Canyon Petroglyph Site would be designated and new trails are proposed as follows:

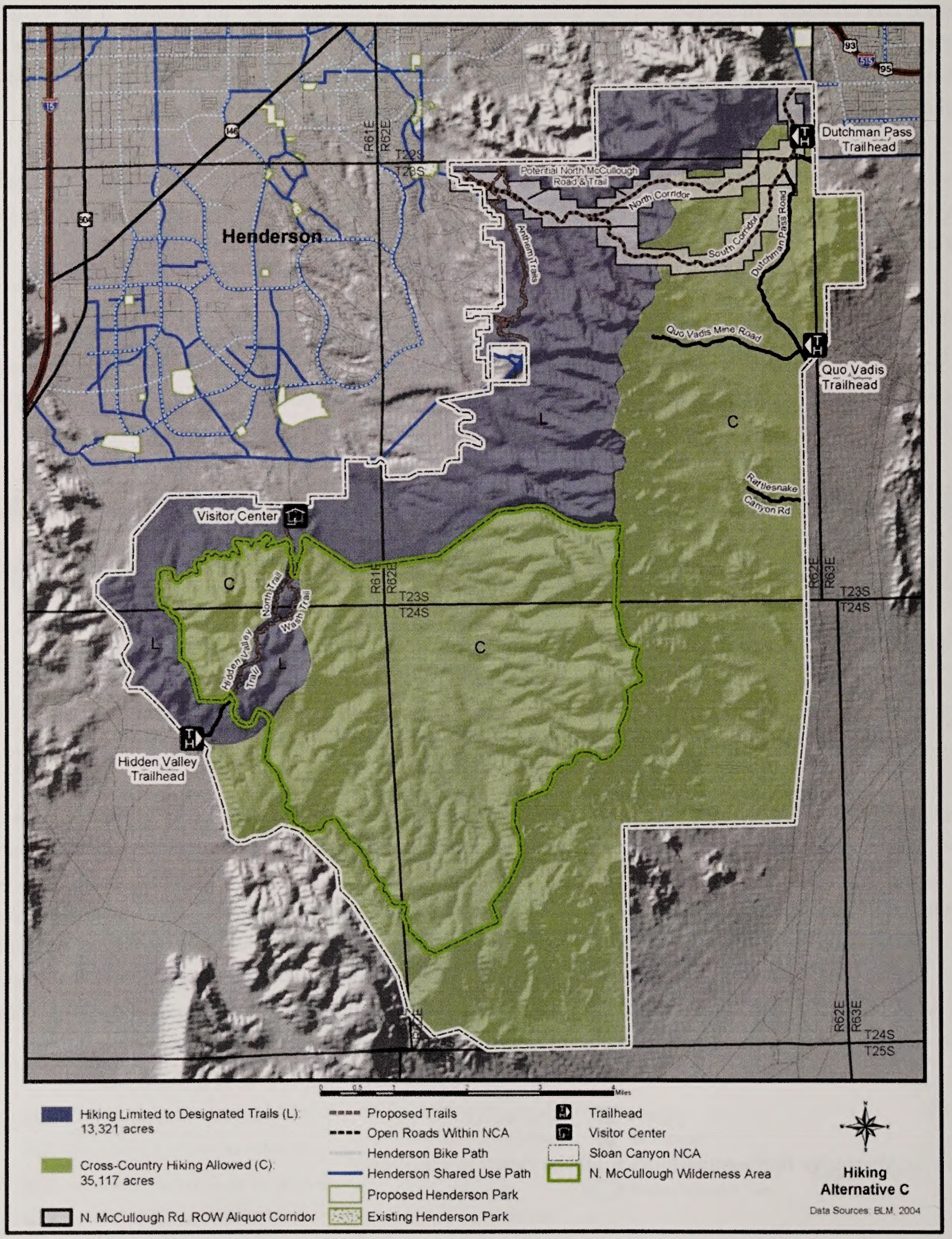
Designated Trails	Activities
North access to the Sloan Canyon Petroglyph Site via wash	Hiking
Proposed Trails	
North access to the Sloan Canyon Petroglyph Site via pass	Hiking
Hidden Valley Trail to the Sloan Canyon Petroglyph Site	Hiking
Anthem Trail System (N-76312)	Hiking, mountain biking
North McCullough Trail (N-65874)	Hiking, equestrian use, mountain biking

Trails would be added as needed and if their design and construction would not cause unacceptable impacts to sensitive cultural resources, natural resources, or wilderness values. Site-specific resource conditions would be considered when selecting trail locations and designing trail features, for example, trails would not be constructed within ¼ mile of wildlife water developments. Trails development in sensitive natural or cultural areas would be avoided, if possible. All trails outside the Wilderness would be evaluated and developed with consideration to the *Americans with Disabilities Act of 1990* prior to construction and designation. Wheelchairs would be allowed in the Wilderness but BLM is not required to facilitate such uses. Same as the No Action Alternative, any unauthorized trails would be restored to natural conditions upon discovery.

OHV

Same as Alternative B, the entire NCA would be closed to OHV use.

Figure 2.18. Hiking (Alternative C)



Activity	Allowed		Prohibited
	Must Stay On Trails	Cross-Country	
	• Quo Vadis Mine Road • Rattlesnake Canyon Road		
OHV Use	None		100% of the NCA
Camping/Campfires (Figure 2.21)	53% of the NCA (Primitive camping)		47% of the NCA
Rock Climbing	98% of the NCA (Permanent anchors prohibited)		• Sloan Canyon Petroglyph Site and its northern access • Designated Sensitive Resource Areas
Dogs (on leash)	98% of the NCA		• Sloan Canyon Petroglyph Site and its northern access • Designated Sensitive Resource Areas
Geocaching	None		100% of the NCA
Recreational Target Shooting	None		100% of the NCA
Rockhounding	98% of the NCA with use authorizations		• Sloan Canyon Petroglyph Site and its northern access

Hiking/Equestrian Use/Mountain Biking Areas

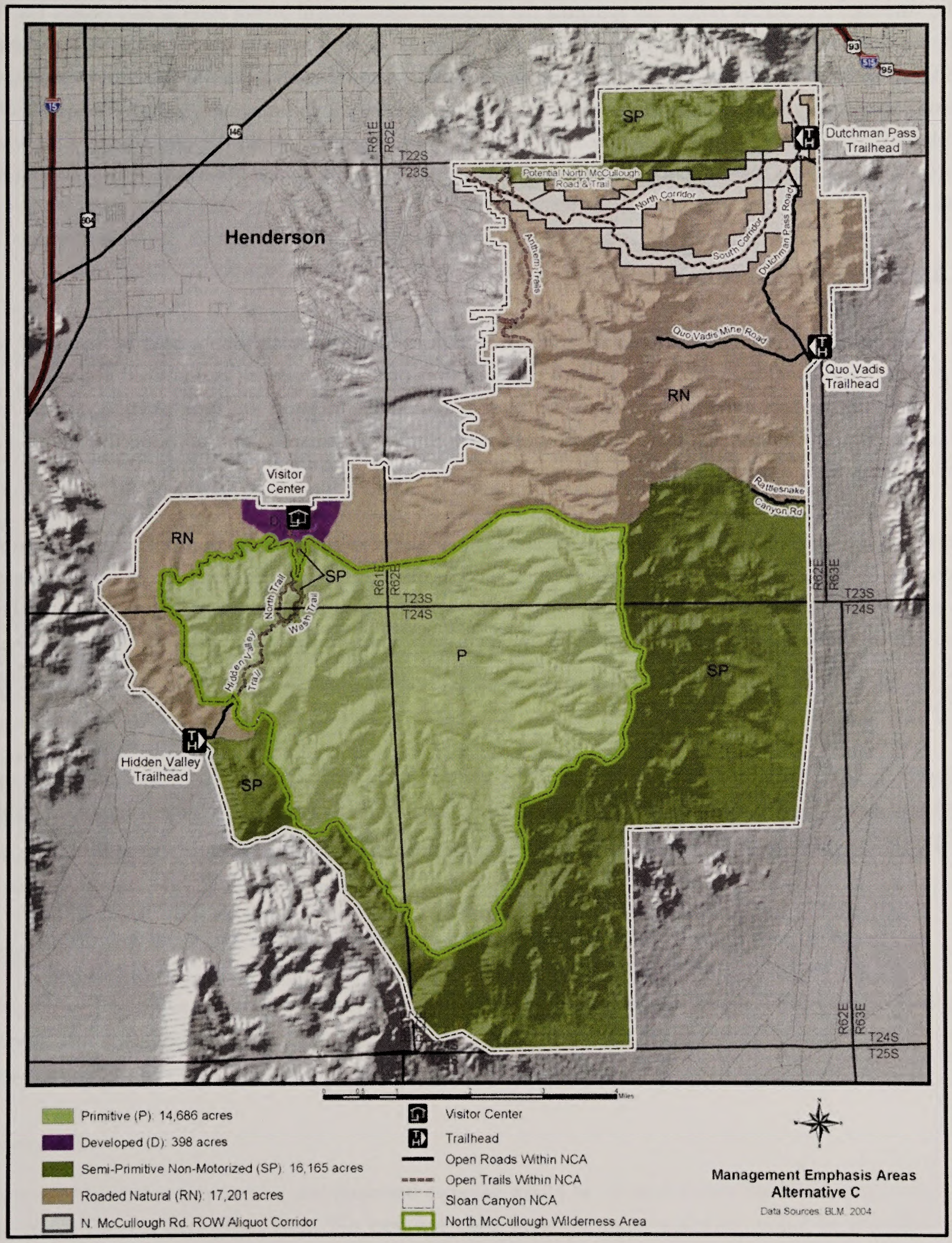
Based on likely amounts of use and an effort to preserve visual and biological resources and subsequent need for administrative controls, the NCA would be divided into areas for two types of hiking use: one limited to designated trails and the other for cross-country hiking. Hiking Alternative C Map (Figure 2.18) delineates these hiking areas. Equestrian use would follow a similar management approach, with horses being allowed

Table 2.5. Recreation Management Actions—Alternative C

Activity	Allowed		Prohibited
	Must Stay On Trails	Cross-Country	
Hiking (Figure 2.18)	27% of the NCA Designated Trail • Sloan Canyon Visitor's Center to the Sloan Canyon Petroglyph Site (wash alternative) Proposed New Trails*: • Sloan Canyon Visitor's Center to the Sloan Canyon Petroglyph Site (pass alternative) • Hidden Valley Trailhead to the Sloan Canyon Petroglyph Site • Anthem Trail System • North McCullough Trail	73% of the NCA	None
Equestrian Use (Figure 2.19)	12% of the NCA Proposed New Trails*: • North McCullough Trail	59% of the NCA	29% of the NCA
Mountain Biking (Figure 2.20)	11% of the NCA Proposed New Trails*: • Anthem Trail System • North McCullough Trail Designated Roads*: • North McCullough Road • Dutchman Pass Road	None	89% of the NCA

* In the future, more trails and roads could be added or designated.

Figure 2.17. Management Emphasis Areas (Alternative C)



2.8.1 Management Emphasis Areas (Alternative C)

The Alternative C MEAs reflect the potential for increased development at the main access points for the NCA. The north access to Sloan Canyon around the potential visitor center would be zoned as Developed and the highly visited Sloan Canyon Petroglyph Site would be changed from a Primitive (in Alternative B) to Semi-Primitive zone. In addition, the area north of the North McCullough Road and Trail ROW (N-65874), near the Dutchman Pass Trailhead, would be zoned Roaded Natural as would the area south of the Quo Vadis Trailhead. The MEA zones objectives are presented in Section 2.3 and shown in Figure 2.17, MEA Alternative C Map.

2.8.2 Recreation (Alternative C)

To be flexible and responsive to probable increases in user demands, recreation would be managed for experiences and beneficial outcomes based on the objectives of the MEA zones as described in Section 2.3. The character of the zones ranges from primitive to developed in terms of their physical, social, and administrative attributes, and these attributes would define the character of the respective recreation opportunities (e.g., activities available).

Because use of the NCA will likely change dramatically over the coming years, Alternative C contains flexible recreation guidance, which would be refined into specific management criteria based on use and resource monitoring. Visitation and resource monitoring would be used to establish and assess the NCA's baseline resource conditions and document any changes to them (Appendix C, Recreation Monitoring Plan). Once the resource baselines are determined, a system such as LAC could be used to establish thresholds for future actions.

Alternative C provides opportunities for more developed recreational use such as mountain biking and increased administrative control as in requiring visitors to remain on designated trails in certain areas. Table 2.5 provides a summary of Alternative C recreation management actions.

Recreation Management in the Wilderness

Hiking/Equestrian Use

Same as Alternative C, cross-country hiking would be allowed throughout the majority of the Wilderness, except for the areas near the north access to Sloan Canyon and south access from the Hidden Valley Trailhead to the Sloan Canyon Petroglyph Site, which would only be accessed through designated trails. Same as Alternative C, part of the Wilderness would be available for cross-county equestrian use, except the area near the Sloan Canyon Petroglyph Site. Construction and/or designation of hiking and equestrian trails would be considered for resource protection and opportunities for primitive recreation. Same as Alternative C, horse feed and hay must be certified weed-free to prevent the spread of noxious and invasive weeds.

Trails

Same as Alternative C, in order to minimize resource impacts, trails from both the north and south access points would be designated and constructed (Figure 2.22 [Designated Hiking Trails Map]). In the Wilderness, there would be three trail options: the traditional wash hike, a newly constructed trail which forks off of the traditional wash hike and avoids the rockfall portion of the wash trail, and the trail from the Hidden Valley Trailhead to the Sloan Canyon Petroglyph Site. A ladder or constructed rock stairway could be placed over the rockfall area.

Same as Alternative C, new social trails resulting in resource damage within the Wilderness (not desired for future designation, modification, or use) would be restored after conducting a minimum requirement/minimum tool analysis. Same as Alternative C, low-profile, wilderness-appropriate, "Closed" signs would be installed on social trails, and associated recreation use would be dispersed to other locations using area closures, barriers, and visitor information. Additional trails would be designed, constructed, and maintained for resource protection and to enhance opportunities for primitive recreation. Same as Alternative C, the development of improvements (for example, trails) near wildlife water would be prohibited within a ¼-mile area. Minimal permanent improvements would be allowed only for the purposes of resource protection measures, enhancement of wilderness values, and erosion control and only after conducting a minimum requirement/minimum tool analysis.

Dogs

Dogs would be allowed in the Wilderness, except within the Sloan Canyon Petroglyph Site and its northern access, and designated resource areas, under Alternative D. Same as Alternative C, in addition, dog feces would be required to be immediately removed and packed out by the animal owner in the Wilderness.

Nighttime Use

Same as Alternative C, primitive and dispersed camping would be allowed within the Wilderness, except in the Sloan Canyon Petroglyph Site. No camping sites, water, or other amenities would be provided and campers would have to be self-sufficient. Campfires made only at camping sites, using fire pans or fire

blankets would be allowed and fire waste products would be packed out. Campfire rings would not be allowed in the Wilderness.

Other Recreation Use

Bouldering and traditional rock climbing with use of low profile, natural colored fixed anchors would be allowed outside of sensitive resource areas, such as the Sloan Canyon Petroglyph Site and its northern access in the Wilderness. The use of power drills for installation of anchors would be prohibited in the Wilderness. Same as Alternative B and Alternative C, geocaching would be prohibited in the Wilderness.

Wilderness Signage and Interpretation

Same as Alternative C, wilderness boundary signage would be would be installed at all known and potential access routes, visitor use areas, and at "line of sight" distances along the entire Wilderness boundary.

Same as Alternative C, all trailhead signage, such as signs and kiosks would be located outside the Wilderness boundary. Signs and kiosks would be placed at every access route entering the Wilderness. Route information, maps, visitor, and interpretive information would be displayed on the signs and kiosks.

Minimal permanent improvements would be allowed in the Wilderness only for the purpose of resource protection, human health and safety, and enhancement of wilderness values.

Wilderness Soundscape

Same as Alternative B and Alternative C, soundscapes within the Wilderness would be maintained at or below baseline ambient noise levels established through acoustical monitoring.

Wilderness Disturbance Restoration

Same as Alternative C, all vandalism and illegal dumping within the Wilderness would be removed or repaired after conducting a minimum requirement/minimum tool analysis. Same as Alternative C, existing disturbances and/or alterations such as two track ways, rock dam, and dug well within the Wilderness would be restored within 3 years of the RMP record of decision date using appropriate resources determined through a minimum requirement/minimum tool analysis for each rehabilitation project.

Same as Alternative B and Alternative C, noxious and invasive weeds would be managed in accordance with the *Partners Against Weeds – An Action Plan for BLM* (BLM 1996) initiative for weeds.

2.9.4 Cultural Resources (Alternative D)

The management of the cultural resources sites would be guided by Appendix D, which contains elements of a Cultural Resources Management Plan and by use categories. Additional information on these categories, and Appendix D, can be found in Section 2.5.3.

The majority of rockshelters throughout the NCA, except the Sloan Canyon Petroglyph Site, would be assigned to the scientific and traditional use management categories. The remainder of rockshelters would be assigned to the conservation for future and traditional use categories.

The majority of rock art locales throughout the NCA, except the Sloan Canyon Petroglyph Site, would be assigned to the traditional and public use management categories. The remainder of rock art locales would be assigned to the conservation for future, scientific, and traditional use categories.

The majority of all other prehistoric and historic cultural resource sites would be assigned to the scientific and traditional use management categories. The remainder of the sites would be assigned to conservation for future use and traditional use.

Same as Alternative B and Alternative C, sites ineligible for inclusion in the NRHP and isolates would be assigned to the scientific, and experimental use management categories.

Same as Alternative B and Alternative C, in areas identified as having a medium to high potential for cultural resource sites (Duke et al 2004), a Class III cultural resources inventory (100%) would be required prior to any land disturbing undertaking. For areas with a low potential density for cultural resource sites, a reconnaissance level inventory would be required prior to the land disturbing activities. Areas with a low potential would be considered for elimination of inventory requirements when sufficient information is available.

Same as Alternative B and Alternative C, maximum fire suppression would be utilized in the Sloan Canyon Petroglyph Site. Areas with a high or medium potential for cultural resources would utilize flexible fire suppression with a cultural resource advisor assigned to the fire. In areas with low potential for cultural resources, fire control would be discretionary with no cultural resource advisor required.

Sloan Canyon Petroglyph Site

Same as Alternative C, cultural resource sites within the Sloan Canyon Petroglyph Site would be assigned to the traditional, conservation for future, public, and scientific use. Management actions related to the cultural resource sites would be within the limits prescribed by the Wilderness Management Plan and the Clark County Act, Title II ("Wilderness Areas").

2.9.5 Special Designations—Areas of Critical Environmental Concern (Alternative D)

Same as Alternative C, the Sloan Rock Art District ACEC designation would be eliminated and the Sloan Canyon Petroglyph Site would be managed in accordance with existing law, regulation, policy, and the management prescriptions established through this RMP.

2.9.6 Visual Resources (Alternative D)

VRM classes would be established based on the Visual Resource Inventory, including designating the North McCullough Wilderness Area as VRM Class I. VRM classes would be designated as shown on the VRM Classes Alternative D Map, Figure 2.33. Same as Alternative B and Alternative C, The VRM class definitions would be:

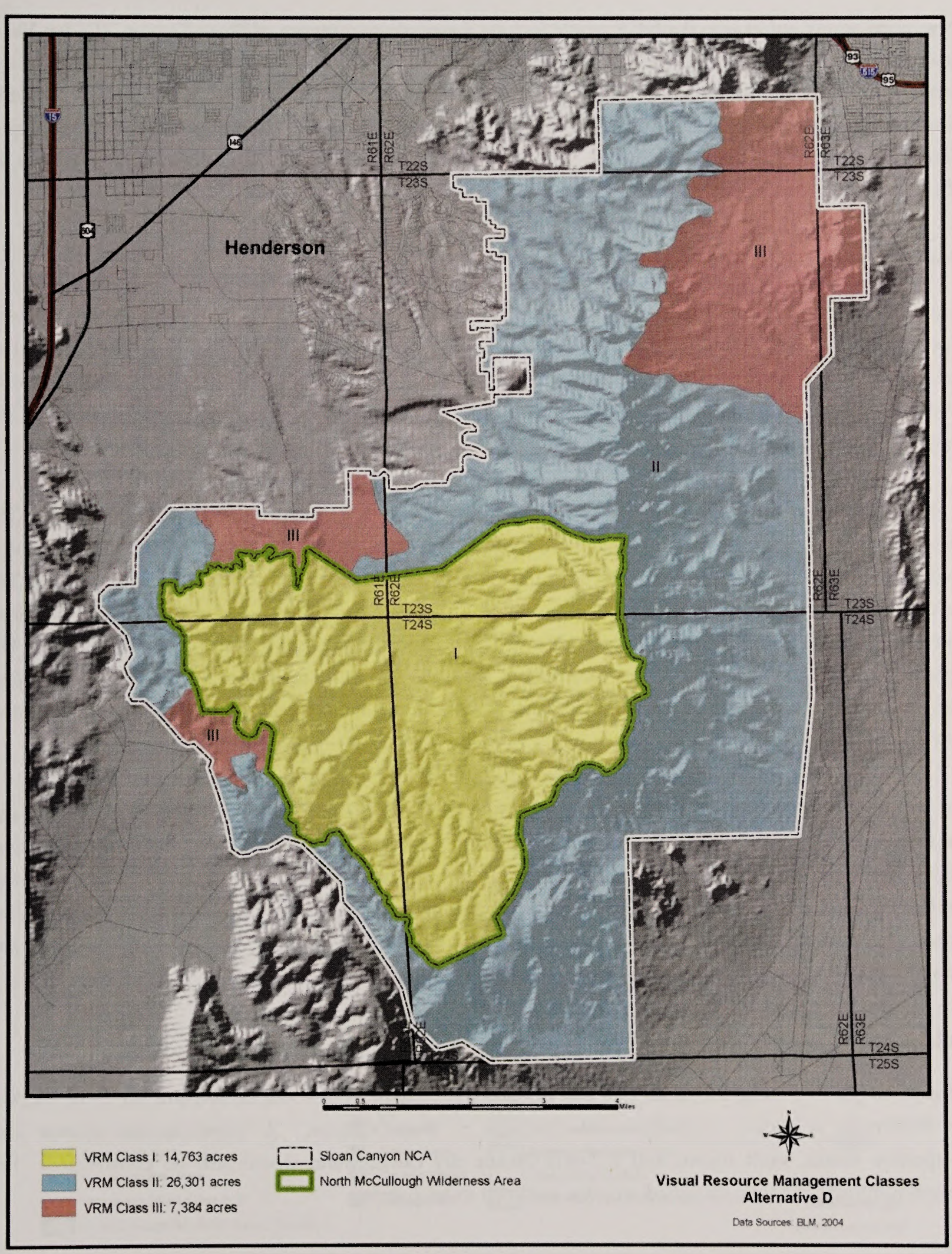
- **VRM I**: To preserve the existing character of the landscape. Authorized actions may not modify the existing landscape or attract the attention of casual viewers.
- **VRM II**: To retain the existing character of the landscape. The level of change to the characteristic landscape should be low, and may not attract the attention of casual viewers.
- **VRM III:** To partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate, and may minimally attract the attention of the casual viewer.

2.9.7 Interpretation (Alternative D)

Visible interpretive media, such as signs, kiosks, and brochures would be provided throughout the NCA except the North McCullough Wilderness Area. The media would be designed to draw attention to interpreted resources where appropriate, due to other resource considerations. Location of interpretive media would be determined in a manner that best interprets the resources. A full range of interpretive media would be provided, pending other resource considerations.

In the Wilderness, the use of low-profile, natural in color interpretive media would be allowed in areas of high use. These media would be allowed only for the purposes of resource protection and the enhancement of wilderness values.

Figure 2.33. Visual Resource Management Classes (Alternative D)



2.9.8 Facilities (Alternative D)

Developed access points into the NCA would include the northern entrance of Sloan Canyon, Hidden Valley Trailhead, Dutchman Pass Trailhead, the Quo Vadis Trailhead, and the Sutor Hills Trailhead. The Proposed Facilities Alternative D Map (Figure 2.34) depicts the locations of these facilities. NCA information would be provided at offsite facilities such as libraries, schools, and the Chambers of Commerce throughout the City of Henderson, Boulder City, and Las Vegas. The level of information provided would be appropriate to the offsite facility. For example, research information would be provided to schools.

Northern Entrance of Sloan Canyon

Same as Alternative C, a conceptual model for a visitor center is presented here for analysis purposes. Operational and facility requirements would be developed based on input from interested parties and tribes and surrounding communities. The total disturbed area, including a 2-acre parking area, was assumed to be 20 acres. The areas and activities for the visitor center is based on input received from the public and cooperating agencies.

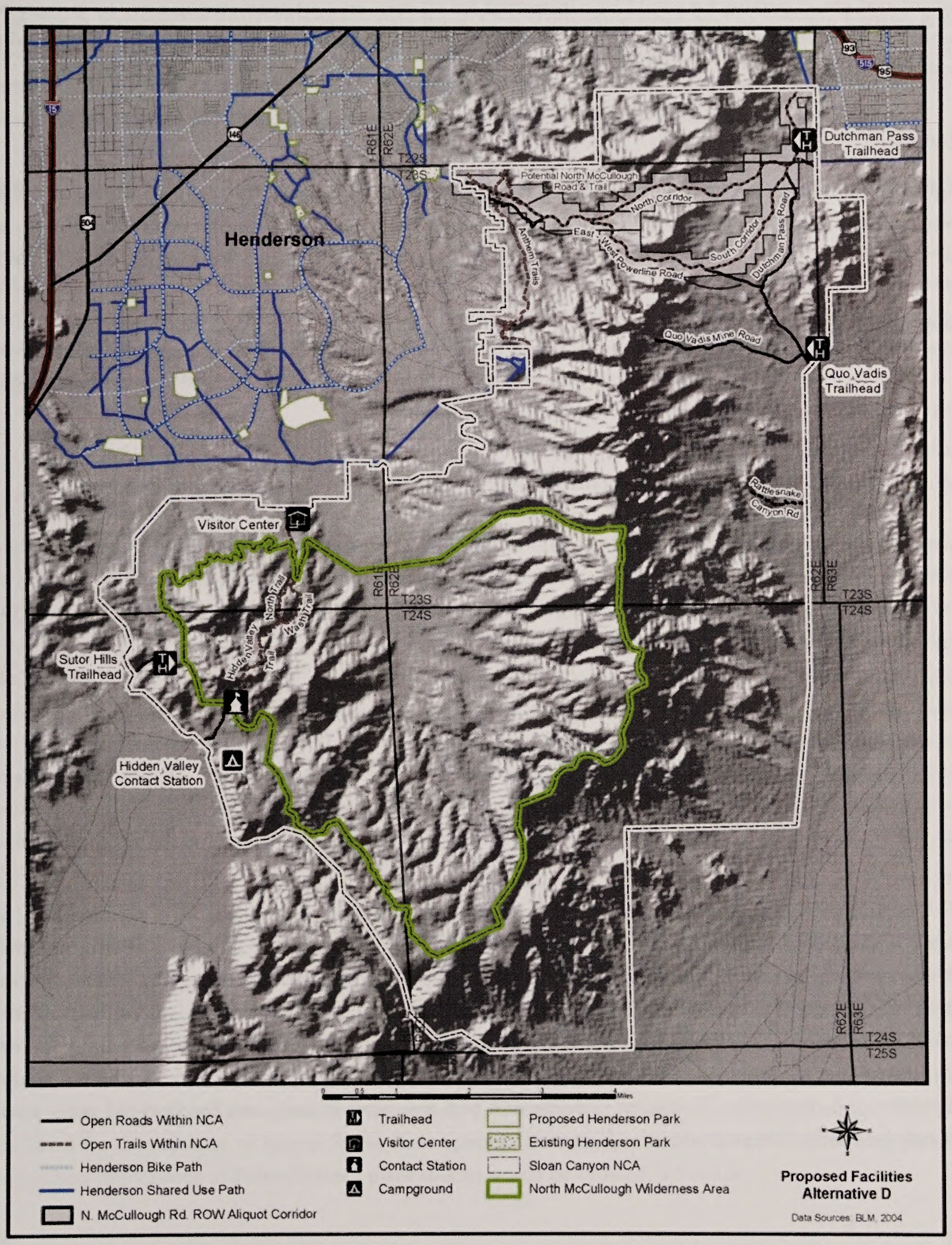
A visitor center could be constructed near the NCA boundary at the north entrance to Sloan Canyon. The visitor center could provide NCA management with office space, serve as one of the access and control points for the Sloan Canyon Petroglyph Site, and be the base of operations for patrols and rangers. The central theme of the visitor center could be the NCAs association with Native Americans through the Sloan Canyon Petroglyph Site, and the Tribes who have been cooperating agencies in this Draft RMP/EIS. The Tribes would be invited to continue association with the NCA as interpretative media is developed, participate in the design of the visitor center, which could include design elements to facilitate ongoing Native American use and/or events.

The visitor center could include space for BLM staff, law enforcement, volunteers, visiting scholars and researchers, and a permit window or desk. The visitor center could have facilities for maintenance and storage, areas for interpretive use, outdoor amphitheater, classrooms, research facilities, book store/gift shop, meeting rooms, and concessions. A business plan could be developed for the NCA that would explore income-generating facilities, including space in the visitor center to be leased for food/restaurant facilities and the viability of day rentals of space for meetings or small corporate retreats.

Hidden Valley Trailhead

A hardened gravel parking lot for 20 cars and an equestrian staging area would be constructed in the NCA at the Wilderness boundary, near the south entrance to Sloan Canyon. A visitor contact station with interpretive kiosks, vault toilets, and a 1-acre/20-site dry campground would also be constructed. For analysis purposes, the total disturbed area was assumed to be 2 acres.

Figure 2.34. Proposed Facilities (Alternative D)



Dutchman Pass Trailhead

A hardened gravel parking lot would be constructed for 60 cars, an equestrian staging area, an interpretive kiosk, and bathrooms with water and power. For analysis purposes, the total disturbed area was assumed to be 45,000 square feet.

Quo Vadis Trailhead

A gravel or paved parking lot large enough to accommodate vehicles pulling OHV or horse trailers would be constructed at the Quo Vadis Trailhead. The trailhead would have a gravel equestrian staging area, an interpretive kiosk, and vault toilet. For analysis purposes, the total disturbed area was assumed to be ½ acre.

Sutor Hills Trailhead

A 5-car gravel parking lot would be constructed with an interpretive kiosk and vault toilet. For analysis purposes, the total disturbed area was assumed to be 4,500 square feet.

2.9.9 Lands and Realty (Alternative D)

Same as Alternative B and Alternative C, outside the Wilderness, applications for new linear or site-type ROWs, or any amendments, to existing ROWs would be considered on a case-by-case basis within the NCA, if the action furthers the purpose of the NCA in Section 602 of the Sloan Canyon NCA Act (Figure 2.14). Evaluation criteria could include, in part:

- Direct benefit to the NCA, such as utilities to serve NCA facilities
- Maintaining or decreasing visual contrast
- Reduction of disturbed area
- Improvement in road/ROW alignments to minimize resource impacts.

Same as the No Action Alternative and Alternative C, commercial filming permits could be allowed in the NCA, outside of Wilderness, with location, timing, vehicle, and crew size restrictions. Film permits would be limited to designated trails and trailheads, and would not be allowed in the Sloan Canyon Petroglyph Site. Filming would be prohibited on weekends and Federal holidays. In addition, vehicles associated with the permit may not occupy more than half of the parking area capacity and would not be allowed to create new ground disturbances. The crew size would be limited to a maximum of 25 people per permit for still photography and a maximum of 50 people per permit for motion photography. Same as the No Action Alternative and Alternative B, visitors with cameras and recording devices, not for financial gain, would generally be exempt from the permit requirements.

2.9.10 Transportation (Licensed Motorized Vehicles [Alternative D])

The North McCullough Road, Dutchman Pass Road, Quo Vadis Mine Road, and Rattlesnake Canyon Road, East-West Power Line Road (Serial Number-33006), and Sutor Hills Road would be open to the public for licensed vehicles as shown on Figure 2.35, Sloan Canyon Roads—Licensed Motorized Vehicles Alternative D Map. All other roads and routes would be closed to the public for licensed vehicle use.

2.9.11 Vegetation Management (Including Special Status Species [Alternative D])

Same as Alternative B and C, vegetation would be managed by restoration zones based on Alternative D MEAs to promote native plant communities and restore the plant productivity of disturbed areas through restoration. The threshold of disturbance before restoring natural or improving the condition of native plant communities for each zone would be as follows and is shown on Figure 2.36, Vegetation Disturbance Management Alternative D Map:

- Zone 1 (Primitive MEA)—Conduct restoration if the surface disturbing activity may alter the natural vegetation community processes or if it reduces the viability of local species populations.

- Zone 2 (Non-Motorized, Roaded Natural, Roaded Developed, and Developed MEAs)— Conduct restoration if the surface disturbing activity may have a long-term impact on natural vegetation community processes or if it could have a long-term impact on local species populations.

Restoration projects would take priority in Zone 1 to restore or improve conditions in native plant communities (Appendix K, Restoration Strategy). Same as Alternative C, disturbed areas in the North McCullough Wilderness Area would be restored after completion of a minimum requirement/minimum tool analysis. Same as Alternative B and Alternative C, any developed landscaping would use only plant species native to the NCA. Same as Alternative C, collection of vegetation outside the Wilderness to further the objectives of the NCA would be allowed. Commercial collection of vegetation would be allowed outside the Wilderness.

Same as Alternative B and C, sensitive and Special Status Species habitats would be protected to ensure suitable habitat conditions and population viability. In addition, scientific research and monitoring of Special Status Species would be encouraged. BLM would develop partnerships with universities and other educational groups to facilitate research on and monitoring of Special Status Species.

Same as the No Action Alternative, Alternative B, and Alternative C, sites proposed for disturbance would be evaluated for the presence of Special Status Plant Species. Same as Alternative C, surface disturbing activities within known locations of federally listed plant species would be avoided, if feasible.

Figure 2.35. Sloan Canyon Roads, Licensed Motor Vehicles (Alternative D)

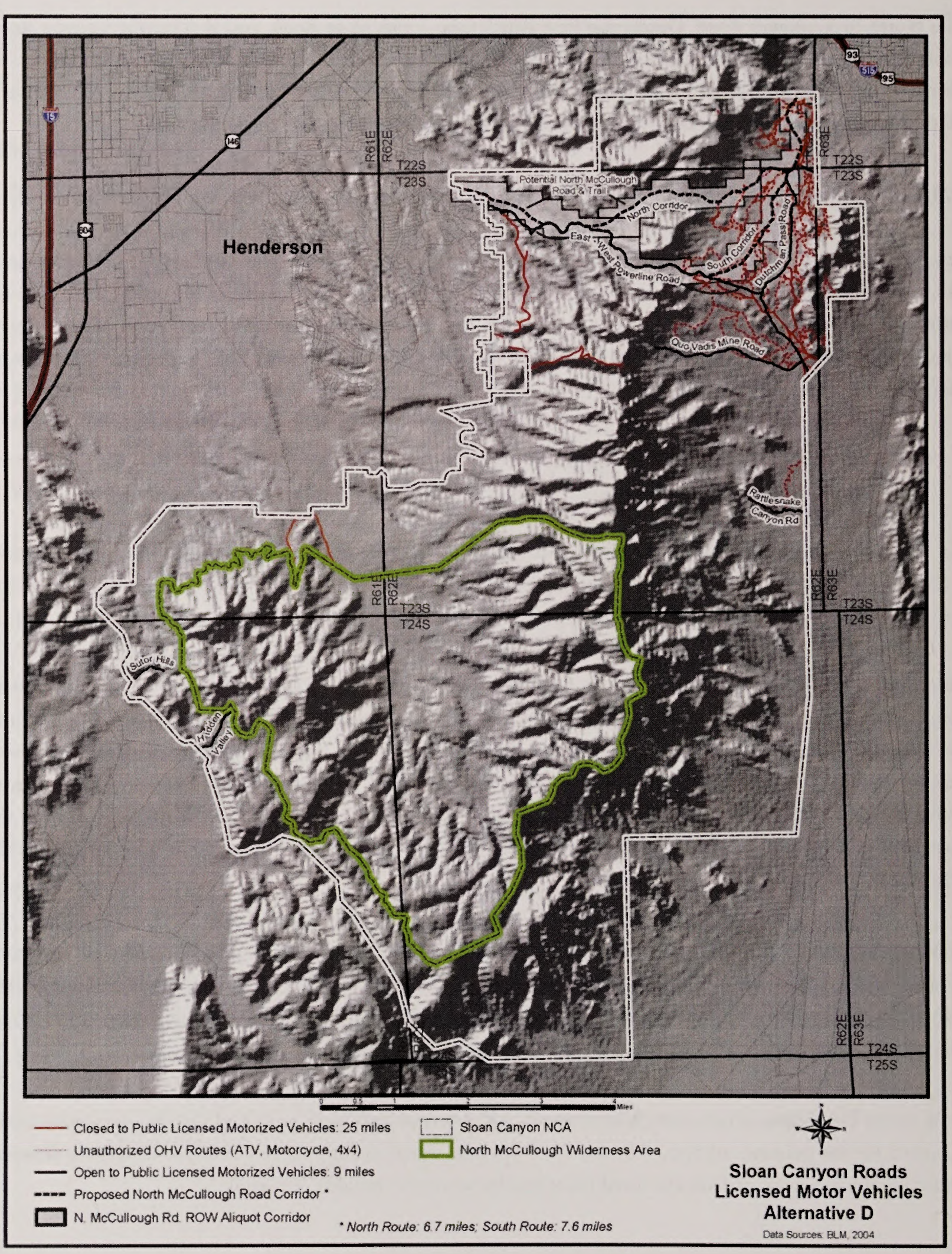
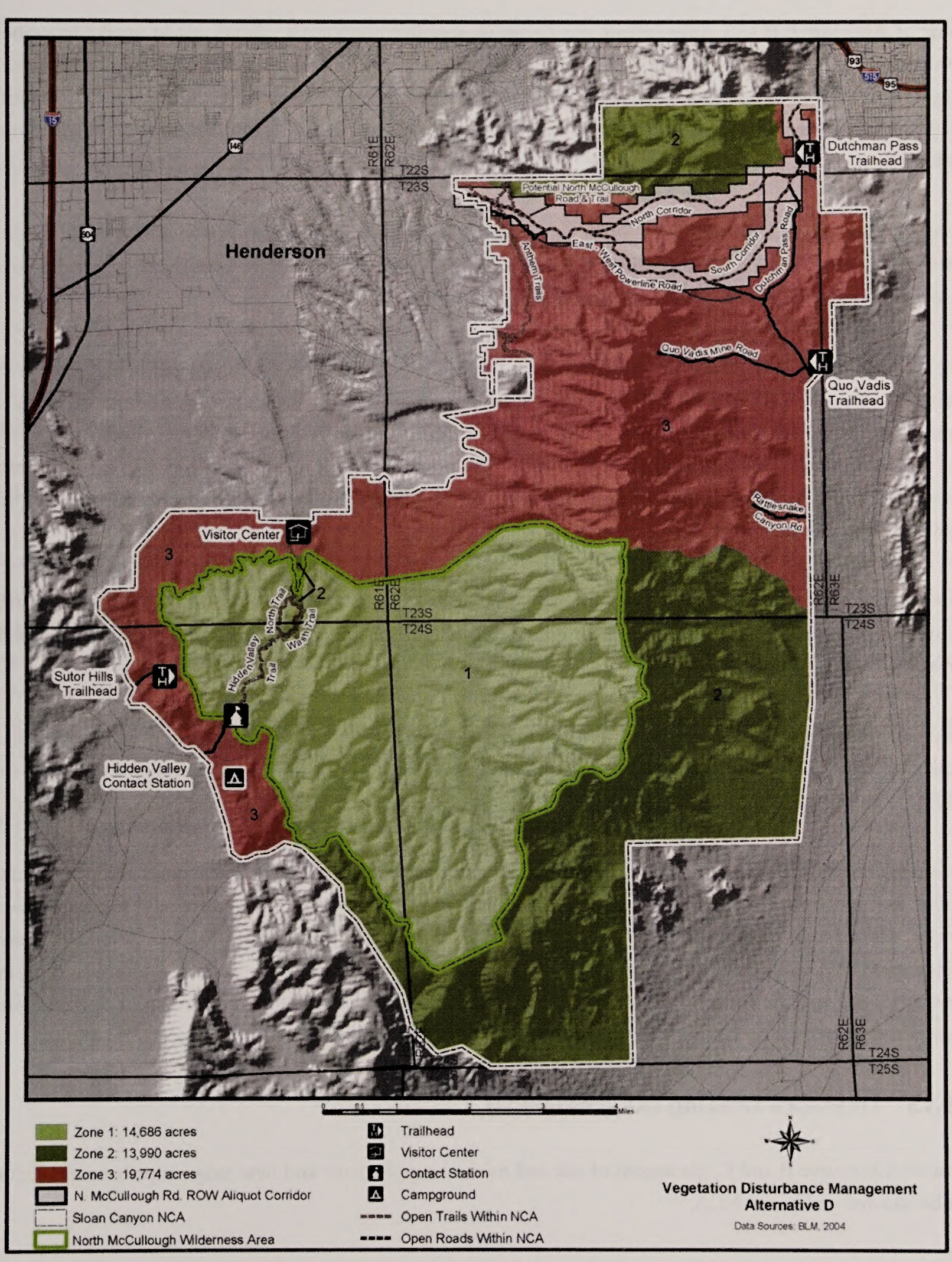


Figure 2.36. Vegetation Disturbance Management (Alternative D)



2.9.12 Wildlife Management (Including Special Status Species [Alternative D])

Same as Alternative B and Alternative C, to better understand the NCA's wildlife, BLM would implement monitoring surveys for appropriate species and wildlife observation studies would be allowed in the NCA, as long as the study does not harass species. Same as Alternative B and Alternative C, interpretive information designed to emphasize the potential effects of recreation use on wildlife would be developed and distributed within the NCA.

Same as Alternative C, permits for wildlife specimen collection would be issued for scientific purposes on a case-by-case basis. Same as Alternative C, all applicants who intend to collect specimens of listed species would be required to obtain additional permits from NDOW and USFWS.

Same as the No Action Alternative and Alternative B, bighorn sheep would be managed in the Wilderness under the current MOU with NDOW as well as appropriate regulations. Visitor use within bighorn sheep or raptor habitats would not be restricted. Trails would be closed only in response to critical threats to wildlife, and seasonal and site closures would be employed as the primary closure techniques. Same as the No Action Alternative and Alternative B, potential nesting areas for migrating raptors would be managed to ensure full regulatory compliance.

Casual and commercial collection of reptiles would be allowed in the NCA, outside the Wilderness. Surface disturbing activities related to the casual or commercial collection of reptiles would be prohibited to avoid impacts to desert tortoises.

Same as Alternative C, feral animals would be removed from the NCA by coordinating with appropriate local, State, and Federal agencies on the trapping and transfer of populations of animals posing a threat to wildlife health or human health and safety. Bird feeders would be prohibited within the NCA.

Same as Alternative B and Alternative C, Special Status Species habitat would be maintained and protected to ensure suitable habitat conditions and viable populations. BLM would conduct surveys for appropriate species. Disturbance or development would be avoided in areas of Special Status Species potential habitat. Disturbance or development would be mitigated in areas of Special Status Species habitat discovered during pre-activity site-specific surveys. BLM would emphasize scientific research and monitoring of Special Status Species and encourage research partnerships with universities and other educational groups.

2.9.13 Livestock Grazing (Alternative D)

Same as Alternative B and C, placement of salt and mineral supplements and new range improvements would not be allowed within the NCA.

2.9.14 Geology and Soils (Alternative D)

Same as Alternative C, intrusive geologic research would be allowed in the NCA by permit to ensure regulatory compliance. Intrusive geologic research would be prohibited in the Sloan Canyon Petroglyph Site and its northern access and with restrictions in the remainder of the Wilderness.

2.10 Management Actions Considered but not Included

During the public scoping process and discussions with cooperating agencies, numerous possible management actions were raised for BLM consideration during the planning process. As part of the development of reasonable alternatives, the planning team rigorously explored and objectively evaluated all of the suggested actions. This section identifies the actions that were eliminated from further consideration and provides a brief explanation of the reasons for eliminations. In general, actions were eliminated if they did not comply with the purpose and intent of the Sloan Canyon NCA Act and other laws, regulations, and policy.

2.10.1 Extensive OHV Trail System

Much of the northern and western portion of the NCA lies within the Clark County Air Quality Nonattainment area for PM_{10}; however, Alternative D identifies an area for OHV use just south of the non-attainment area on the eastern flank of the McCullough Range. Additional OHV trail systems and "play" areas were not considered because they are not compatible with purpose of the Sloan Canyon NCA Act, which is to conserve, protect, and enhance the Conservation Area's cultural, archaeological, natural, wilderness, scientific, geological, biological, wildlife, educational, and scenic resources. In addition, OHV use is allowable in surrounding areas, including Boulder City and Hidden Valley.

2.10.2 Recreational Target Shooting Facilities

Recreational target shooting facilities were not considered in this Draft RMP/EIS for several reasons: they are not compatible with the purpose of the NCA; there are existing recreational target shooting facilities throughout the Las Vegas Valley, including Boulder City and North Las Vegas; and they generate litter and hazardous materials through lead accumulation in bullet impact areas.

CHAPTER 3

Affected Environment

3. AFFECTED ENVIRONMENT

This chapter describes the existing physical, biological, social, and economic characteristics of the Sloan Canyon National Conservation Area (NCA) and its associated planning area. The affected environment defines the baseline of existing conditions from which possible impacts of the plan alternatives may be analyzed. The baseline data were provided by the Bureau of Land Management (BLM) Las Vegas Field Office; Federal, State, county, Tribes, and local agencies; various organizations; field surveys; and other public and private sources. Data sources include published and unpublished reports, maps, geographic information systems (GIS), and field observations.

3.1 PHYSIOGRAPHY

The Sloan Canyon NCA is located in the northern half of the McCullough Range, in the northeastern portion of the Mojave Desert. The basin and range topography typical of the Great Basin is prevalent on a local scale, especially along the eastern front of the range. The northern end of the McCullough Range has a vertical relief of more than 2,500 feet rising above surrounding valleys to a high point of 5,000 feet at Black Mountain.

A long escarpment dominates the topography of the northern portion of the McCullough Range with the eastern slopes much steeper than the western slopes. The escarpment was formed during a series of volcanic flows with the record of these flows preserved because of the minimal faulting (Purkey 1994). Hidden Valley, located at the southwest corner of the NCA, represents a broad depression containing deep wind-blown sand deposits.

No perennial streams are located within the northern portion of McCullough Range; however, there are several small springs and seeps and numerous dry washes. These washes may experience surface flows during precipitation events.

3.2 CLIMATE

The eastern Mojave Desert is one of the most arid regions in North America. The region generally experiences hot summers, mild winters, and wide daily temperature fluctuations caused by the radiation of daytime surface heat into evening skies. Average daily maximum temperatures range from 104°F in July to 56°F in January, although summer temperatures of 115°F are not uncommon within the NCA, and temperatures over 120°F can occur. The average daily minimum temperature ranges from 75°F in July to 33°F in January. Winters are generally mild; however, freezing temperatures do occur with some regularity (U.S. Weather Service 2004).

The average annual precipitation in the Sloan Canyon area is about 4.5 inches, and it often occurs during

monsoon-driven heavy thunderstorms accompanied by flash flooding. Much of this precipitation is subsequently lost to evaporation, which is accelerated by low relative humidity and strong winds.

A variety of factors affect weather patterns in southern Nevada. Most of the area experiences relatively stable, fair-weather conditions resulting from high-pressure systems over the Great Basin (MacMahon 1997). Periodic weather changes occur, affected by a stream of westerly winds blowing over the area during the winter months. Occasionally, cold temperatures and snowfall are produced by winter low-pressure systems. Winds from the west are lighter in the summer months, and subtropical high-pressure systems moving northward have a stronger influence on regional weather during this season. Although intense storms occur, monsoonal moisture from the south is significantly diminished by the time it reaches Nevada, resulting in clear and relatively dry summers (MacMahon 1997, Speck 1982).

3.3 RECREATION

Recreation use in the NCA area has historically been dispersed and at low to moderate levels; however, it has increased along the urban interface with the growth of the Las Vegas Valley population. In general, the NCA has few roads, routes, trails, or facilities to support recreation. Activities such as hiking and off-highway vehicle (OHV) riding have been and continue to be the predominate uses within the NCA. Recreationists are frequently long-time users of specific locations, largely self-sufficient, and may be unaware of the relatively recent NCA designation.

Before passage of the Sloan Canyon NCA Act, the *Las Vegas Resource Management Plan (RMP)* (BLM 1998a) guided management of recreation in the North McCullough Range, although few decisions provide specific direction for the land currently within the NCA. The *Clark County Multiple Species Habitat Conservation Plan (MSHCP)* (Clark County Department of Comprehensive Planning [CCDCP] 2000) provides additional management direction for conservation within the NCA. Administrative actions taken through the *Las Vegas RMP* (BLM 1988a) closed portions of the NCA to shooting, camping, and OHV use (Figure 3.1).

BLM began visitor use observations in November 2003 to track visitor numbers, determine types of visitors, and discern daily and seasonal recreation activities. The number of visitors was recorded daily between November 2003 and July 2004 at several spots throughout the NCA including Hidden Valley, the Sloan Canyon Petroglyph Site, and the northeast corner of the NCA. During this observation period, approximately 4,000 visitors were counted within the NCA (one visitor equals one person recreating in the NCA for any amount of time in the course of one day). This total equates to an average of 15 visitors per day. Visitor patterns indicated peak visitation (15 to 35 visits per day) on weekends and lower use (5 to 15 visits per day) on weekdays. Extrapolated to a full calendar year, the observed visitor total would be approximately 5,500 annual visits. For purposes of planning and analysis, it was assumed that actual visitation is five times higher than the observed. Hence, current visitation is estimated to be about 28,000 visitors per year.

Figure 3.1. BLM Las Vegas Field Office Shooting, Camping, and OHV Closures



Even without the development of additional visitor facilities, visitation is expected to increase as the NCA becomes better known, the regional population grows, and surrounding development grows closer to the NCA boundary. The current annual growth rate in Clark County is 4 percent (Clark County 2003). If this constant growth rate were applied to NCA visitation, total visitation in 2030 would be roughly 75,000. However, other factors could increase visitation to considerably higher levels. For example, Las Vegas has numerous weekly and monthly publications that list "things to do," which includes visiting natural areas such as Red Rock Canyon NCA and Valley of Fire State Park. The Sloan Canyon NCA is not currently listed in these publications but may be in the future, and visitation is expected to increase dramatically.

Although the precise numbers of visitors participating in specific activities are unknown, general patterns have been derived through visitor observations throughout the NCA. Because of the rugged terrain and distinct natural boundaries within the NCA, recreation use is discussed below by geographic area, and associated recreational disturbance is presented in Figure 3.2.

3.3.1 Recreation Use by Area

Northwestern NCA

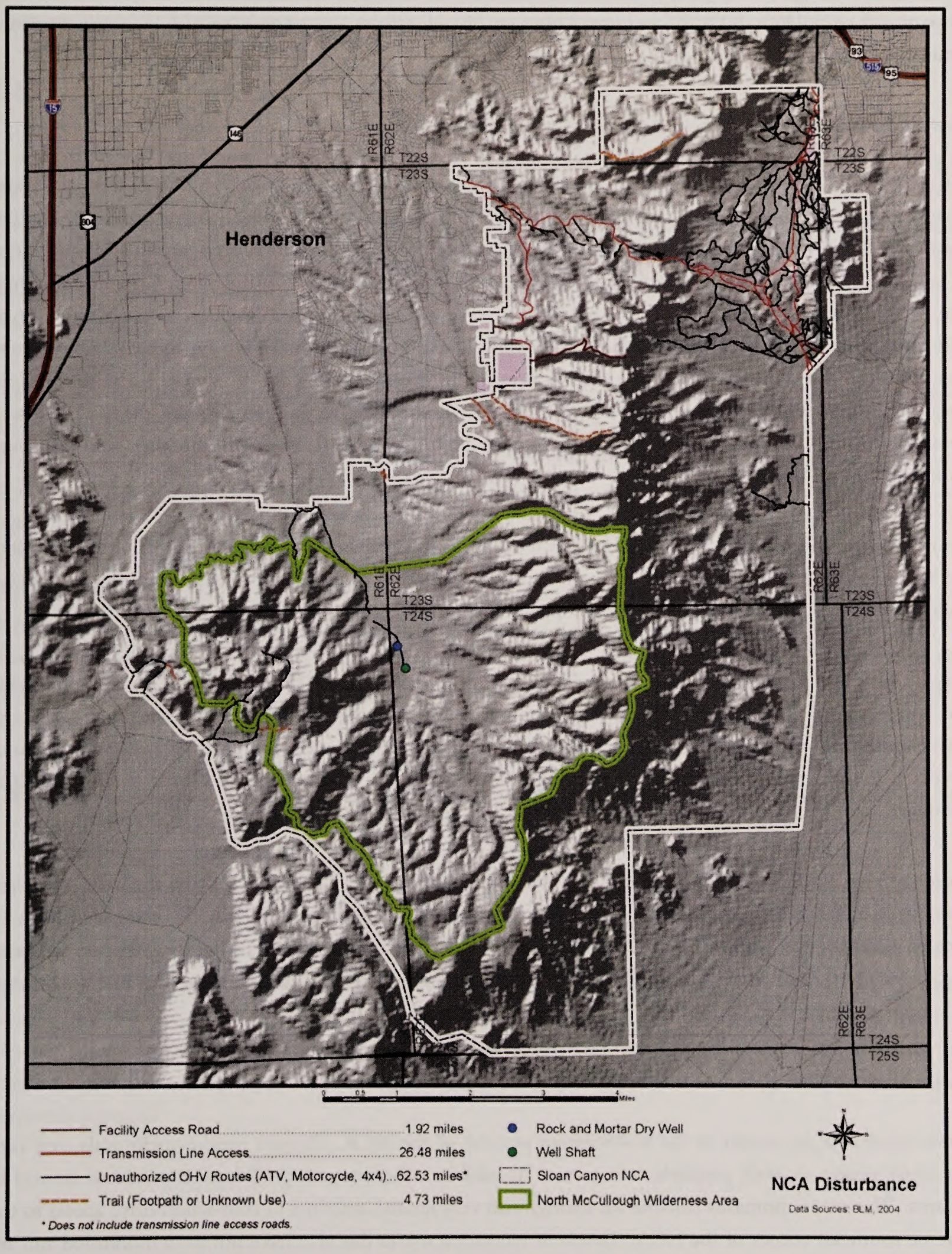
Because of rugged terrain and rocky soils, recreation in the northwestern portion of the NCA is largely restricted to nonmotorized uses, except for a few access points. Motorized access to this area is primarily on the East-West Power Line Road and on the Eastern Avenue extension to the Black Mountain Communication Site road. Other recreationists access this area on foot from adjacent neighborhoods in the City of Henderson. A small number of unofficial trails, which were developed without BLM approval, are known to exist in this area of the NCA. Current use of these unofficial trails is thought to be nearly all hiking, with limited amounts of mountain biking and horseback riding.

The northwestern area receives low but unknown levels of recreation use. Continually changing access and urban patterns may influence the timing and amount of recreation in the area. Overall demand for dispersed recreation use is expected to increase as the urban interface adjacent to the NCA stabilizes. Regional trail-planning efforts by other federal agencies, the City of Henderson, and other local communities will likely present opportunities to develop integrated trail systems.

Northeastern NCA

OHV use is the primary recreation activity in the northeastern portion of the NCA. The basin in the far northeast corner of the NCA has been heavily used by motorcycles, OHVs, and four-wheel-drive vehicles and contains a number of existing routes and trails. Large portions of this area are experiencing resource damage from braided routes, steep grades, and the pioneering of new routes. None of the routes in the area are maintained by BLM; however, two roads associated with the north-south and east-west power lines receive limited maintenance by the Nevada Power Company.

Figure 3.2. Disturbed Areas on the NCA



Because of the relatively easy access, recreational target shooting also occurs in this area, and trash and debris dumping are widespread. Bighorn sheep in the area may be of interest for wildlife watching and for Nevada Department of Wildlife (NDOW)-permitted hunting. In addition, a limited amount of hiking occurs around a number of small peaks along the NCA's eastern boundary.

North McCullough Wilderness Area and Surrounding NCA

The North McCullough Wilderness Area encompasses the Sloan Canyon Petroglyph Site as well as a broad desert basin that is surrounded by portions of the North McCullough Range, which delineates the Wilderness boundary. The Wilderness receives low levels of dispersed use because of its rugged terrain and prohibition of vehicles. The majority of recreationists use the Wilderness when they visit the Sloan Canyon Petroglyph Site, which is usually accessed from the north via the Sloan Canyon wash. Visitation to the Sloan Canyon Petroglyph Site increased with the NCA designation, and large parties, including organized hiking groups, visit the site. Hiking and horseback riding opportunities abound within the Wilderness, and destinations frequently include the Sutor and Hanna Peaks, the North McCullough escarpment, and the Sloan Canyon Petroglyph Site. There are also numerous opportunities for wildlife watching, hunting, and dispersed camping in the Wilderness.

On its western and northern boundary, rugged terrain and rocky soils discourage illegal vehicular access into the Wilderness. A small amount of motorized use of the Wilderness is known to be occurring in Hidden Valley near the southern access to the Sloan Canyon Petroglyph Site.

A small perimeter of NCA lands lies outside of the North McCullough Wilderness Area on its north, west, and southwest boundaries. In these areas, minor amounts of recreational target shooting and OHV use occur. Limited amounts of dispersed camping and wildlife-watching opportunities also exist in this area. Access to the Wilderness and this perimeter area is limited to a few routes, which lie mostly outside the NCA boundary.

Visitor use has not been closely monitored in the Wilderness and surrounding NCA. On the basis of limited monitoring in 2003-2004, preliminary visitor estimates within the Wilderness indicate approximately 5 to 10 persons accessing the Sloan Canyon Petroglyph Site per weekday, with slightly higher visitation on weekend days. Outside the Wilderness, limited visitor-use observation indicates moderate levels of OHV use, hiking, and occasional camping.

Southeastern NCA

Minor recreation use occurs in the southeastern portion of the NCA. Rugged terrain, rocky soils, and very few roads, routes, or trails preclude easy access. In addition, there are few well-known points of interest in the area. The area is primarily suitable for hiking, with very limited amounts of four-wheel drive access to the extreme southeast corner of the NCA. Levels of recreation use in this area have not been monitored and are thought to be extremely low.

3.3.2 Special Recreation Permits

There are currently no special recreation permits issued or under review within the Sloan Canyon NCA.

3.4 North McCullough Wilderness Area

The Clark County Act, Title II ("Wilderness Areas") designated the North McCullough Wilderness Area on November 6, 2002. Before designation, most of the current Wilderness was part of the 47,166-acre North McCullough Wilderness Study Area. The 14,763-acre North McCullough Wilderness Area is located entirely within the southwest portion of the NCA in the northern half of the McCullough Range (Figure 3.3). This Wilderness is a unique component of the National Wilderness Preservation System because it is fewer than 15 miles south of Las Vegas.

The Wilderness is roughly triangular in shape and spans approximately 6 miles at its longest and widest points. The eastern boundary follows the crest of the escarpment whose base forms the eastern edge of the NCA. The western boundary is defined by the volcanic features that rim Hidden Valley, and the northern boundary crosses Sutor Hills, Sloan Canyon, and a large basin that drains the western portion of the escarpment.

The Wilderness contains the Sloan Canyon Petroglyph Site and other prominent features such as Sutor and Hanna Peaks. Access to the area is limited to several vehicle routes approaching from the northwest in the Sloan Canyon area and the southwest from Hidden Valley. These routes access Sloan Canyon and the wash leading to the Sloan Canyon Petroglyph Site. Other access to the Wilderness is by off-trail hiking or horseback riding as there are no formal trails, trailheads, or facilities adjacent to or within the Wilderness.

3.4.1 Wilderness Characteristics: Naturalness, Solitude, and Opportunities for Primitive and Unconfined Recreation

The quality of the wilderness values was a key consideration in designating the North McCullough Wilderness Area. An important element was the Wilderness' value in providing primitive and unconfined recreation use adjacent to a rapidly expanding urban area. The Wilderness generally appears natural, but there are several signs of human use, primarily vehicle tracks due to OHV travel. Opportunities for solitude are available because of low levels of recreation use as well as topography that provides some natural screening from the adjacent urban area or other wilderness users. Wilderness recreation opportunities such as hiking and horseback riding are easily pursued in this environment. Opportunities for camping are possible but not frequently pursued.

Figure 3.3. North McCullough Wilderness Area



The highest percentage of low-level aircraft flying over the Wilderness is from scenic tours originating from the North Las Vegas Airport, although private flights from Henderson Executive Airport, located several miles from the northern boundary, provide some contribution. Aircraft flying fewer than 1,000 feet above the land's surface are frequently over the Wilderness. In addition, overflights from McCarran International Airport pass directly over the Wilderness, although they tend to be localized to the west edge and at an altitude of more than 4,000 feet above the land's surface.

3.4.2 Wilderness Recreation Use

Levels of recreation use within the North McCullough Wilderness Area were not closely monitored before its designation. Preliminary visitor estimates conducted from the winter of 2003 through summer of 2004 indicate approximately 5 to 10 persons accessing the Sloan Canyon Petroglyph Site per weekday, with slightly higher visitation on weekend days. Use of the Wilderness appears to be primarily for day hiking to points of interest such as Sloan Canyon, Sutor and Hanna Peaks, and the McCullough escarpment. Other types of recreation are extremely limited. Immediately outside the Wilderness, visitor- use observation indicates moderate levels of OHV use and occasional camping.

3.4.3 Disturbance, Development, and Wilderness Impacts

A disturbance inventory for the North McCullough Wilderness Area was completed in January 2003. Findings of the inventory indicate relatively little disturbance that requires rehabilitation, but several vehicle tracks and several small spurs may require restoration (BLM 2003d). Wilderness disturbances found during this inventory are listed in Table 3.1 and presented in Figure 3.4.

Figure 3.4. Disturbed Areas within the North McCullough Wilderness

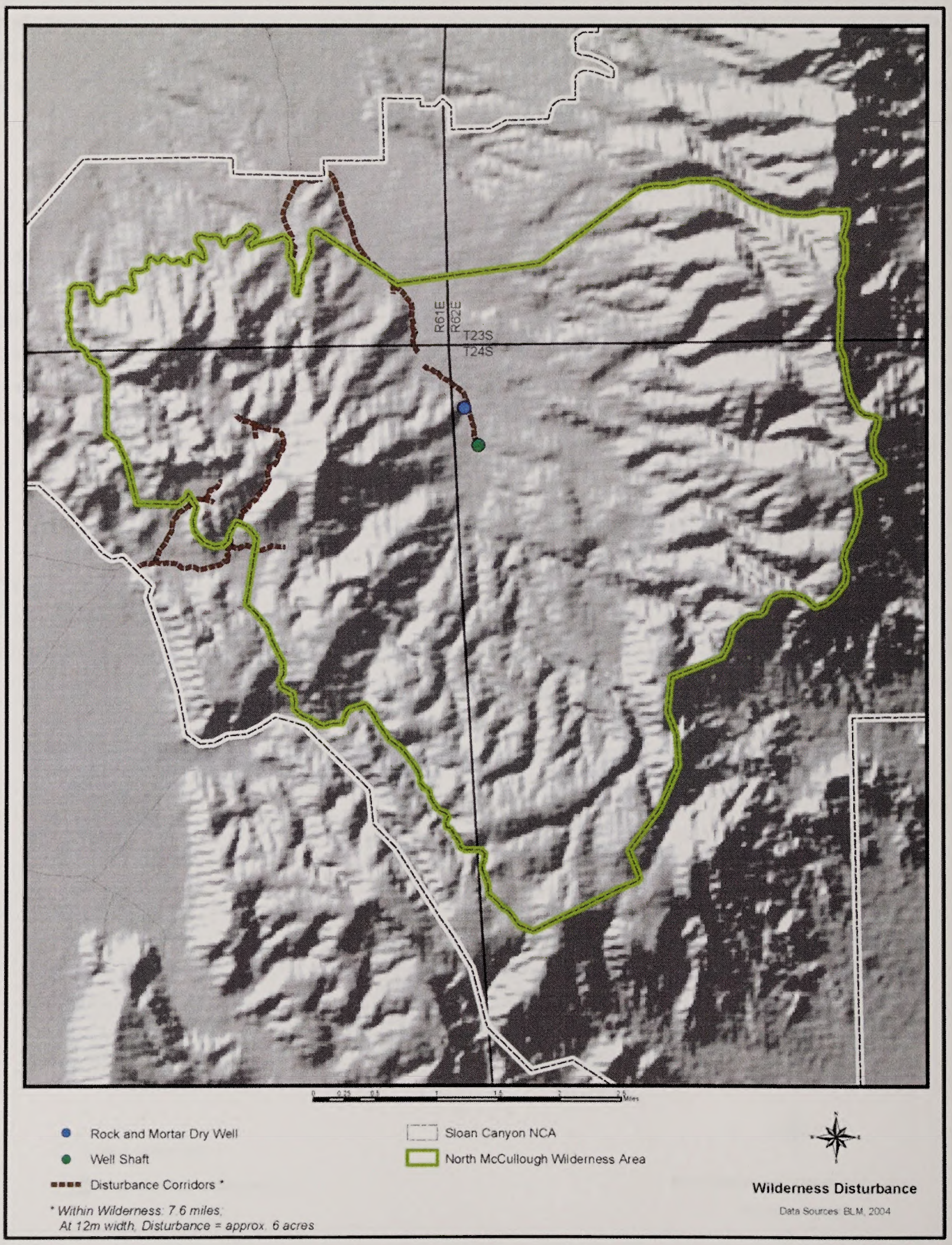


Table 3.1. North McCullough Wilderness Area Disturbances

Disturbance Number	Description	Location
North McCullough-1	Two-track route entering Wilderness across northern boundary	East of Sloan Canyon. Approximate route and location shown as 4-Wheel Drive road on United States Geological Survey 1:24,000 maps. T 23 and 24 S; R 61 and 62 E; Sections 36, 1, 6
North McCullough-2	Spur two-track intersecting disturbance NM-1	T 23 S; R 61 E; Section 36
North McCullough-3	Two-track route following a rough wash	T 24 S; R 61 E; Section 3, SW1/4,SW1/4,SW1/4
North McCullough-4	Two-track route that intersects disturbance NM-3	T 24 S; R 61 E; Section 10, NE1/4,NE1/4
North McCullough-5	Route accessing North McCullough Slickrock Catchment #1 area and continuing to west	T 24 S; R 61 E; Sections 2 and 11
North McCullough-6	Weak two-track route from disturbance NM-5 accessing North McCullough Slickrock Catchment #2 site	T 24 S; R 61 E; Section 2
North McCullough Slickrock Catchment #1	Wildlife water development including catchment, tanks, and water access for wildlife	T 24 S; R 61 E; Section 2
Miscellaneous sites with past mining activity	Approximately three abandoned mining claims exist within the northwestern portion of the Wilderness. Approximate locations are T 23 S; R 61 E; Sections 23 and 26 and T 24 S; R 62 E; Section 6. Low levels of disturbance associated with claim assessments and improvements may be present.	

Source: BLM 2003d.

The North McCullough Slickrock Catchment #1 (Project #4916) is the only wildlife water development within the Wilderness, and it is just south of the Sloan Canyon Petroglyph Site. This wildlife water development was installed before Wilderness designation, when the area was a Wilderness Study Area. The environmental assessment for the development stated that motorized vehicles would not be required for future maintenance.

The Wilderness boundary is inaccessible to vehicles in many places, but in some portions it is not well defined by natural features. Although illegal use of the Wilderness has not been a significant issue in the past, increased publicity and visitation will require boundary delineation. The boundary is currently marked and signed in only a handful of locations to inform visitors of the change in management when entering the area. Continuing or increased levels of disturbance from illegal use of the Wilderness remains a possibility until known access points are signed and barricaded as appropriate.

3.4.4 Regulatory Framework

On November 6, 2002, the Clark County Act, Title II ("Wilderness Areas") designated the North McCullough Wilderness Area from lands formerly identified as the North McCullough Wilderness Study Area. The North McCullough Wilderness Area is managed according to the Wilderness Act of 1964, Federal Land Policy and Management Act, the Clark County Act, and BLM Wilderness Regulations published in 43 Code of Federal Regulations 6300. BLM implements these laws through its Wilderness Management Regulations, published as a final rule in 43 CFR 6300 and 8560.

BLM currently manages the North McCullough Wilderness Area by providing protection of the area, preserving its wilderness character, and disseminating information about its use that will enhance the public's present and future use of the Wilderness. BLM is directed to manage all activities conducted in wilderness areas in a manner that preserves their wilderness character.

3.5 Cultural Resources

Evidence of historic and prehistoric use of the Sloan Canyon area has been identified through field inventories (surveys), historical documentation, and oral records. An archaeological-records search identified 32 cultural resource surveys/inventories completed in and around the Sloan Canyon NCA before this planning effort. These surveys identified 54 cultural resource sites in and near the NCA. A systematic, 25 percent sample survey of the NCA was completed as part of this RMP, and 90 additional sites were identified.

3.5.1 Cultural Context

Archaeological evidence suggests that resources within the NCA may have been used for nearly 7,000 years. Limited evidence from cultural resource inventories indicates that early-Archaic cultures used the NCA and the surrounding area for hunting and gathering earlier than 4,000 years ago. The low number of projectile points, combined with the lack of contemporary hunting camps and other hunting features suggest that, while the area was used for hunting, use was limited (Duke et al. 2004). An increase in the proportion of middle-Archaic projectile points in relation to earlier points suggests that a patterned use of the NCA's hunting resources were utilized between 3,300 and 1,300 years ago (Duke et al. 2004). As with early-Archaic use, the small number of middle-Archaic sites and the lack of related hunting features and habitation sites indicate hunting expeditions into the NCA were not common. Although archaeological evidence suggests the use of the NCA by Native cultures during the Archaic period, this use was minor when compared to later uses.

The Ceramic Period (1,500 A.D.) marks the beginnings of Puebloan influence in the Las Vegas Valley (Duke et al. 2004). These cultures adopted lifestyles more sedentary than Archaic cultures, often supplementing hunting and gathering with floodplain agriculture. Their ceramics were the most prevalent ware identified within the NCA, indicating a Virgin Branch influence between A.D. 500 and 1200. In addition, artifacts distinctly from the Patayan cultural tradition (Lower Colorado or Yuman) were identified during inventories. Although substantially less common than the Anasazi, the Patayan presence indicates concurrent use of the NCA's resources by more than one culture. By approximately A.D. 1300 the Virgin Anasazi withdrew from the area, roughly 150 to 200 years later than the Pueblo retraction throughout the remainder of the Southwest. At approximately the same time, Numic, or Shoshonean, cultures made their appearance in the area (Duke et al. 2004.)

When the Europeans arrived, the primary inhabitants of Sloan Canyon were the Las Vegas Band of the Southern Paiute and the closely related Chemehuevi (Duke et al. 2004). Another group, the Mojave, did not share core areas with the Paiute or Chemehuevi, but they did make extensive forays into the deserts and mountains of southern Nevada and sometimes inhabited areas jointly with the other cultures. All these groups employed hunting and gathering methods, supplementing with agricultural cultivation in varying degrees of dependency to supply their resource needs (Duke et al. 2003; BLM 1998a; Myhrer 1991). Vegetation resources were generally a larger part of the diet than was game, which is supported by evidence from the archaeological record. Hunting and gathering relied on exploitation of resources from the surrounding valleys and ranges. The patterns of vegetation and wildlife that are characteristic of southern Nevada played a role in the type of uses and, subsequently, the types and distribution of prehistoric cultural resource sites present in the Sloan Canyon NCA.

The valleys surrounding the McCullough Range were initially utilized by Europeans approximately 150 years ago for transportation routes. These routes were employed in the exploration, settlement, and growth of the area. Springs in Las Vegas were an anticipated resting place by those traveling the Old Spanish/Mormon Trail (Duke et al. 2003). The earliest settlements occurred as a result of the proximity to the transportation routes they were later joined by settlements to take advantage of the ranching and mining resources available in and around the Sloan Canyon NCA. Construction of the San Pedro, Los Angeles, and Salt Lake City Railroad in 1905 stimulated the area's mining pursuits, resulting in the establishment of several mining districts, including the Alunite Mining District and the Quo Vadis Mining Company within the present NCA. During this period, numerous claims were filed within the present Sloan Canyon NCA. The next major stimulus historically was the construction of Hoover Dam. Job seekers hoping to work on the dam lived in squatters' camps throughout the area. Although some of the technologies surrounding land uses changed from prehistoric time, the environmental characteristics of the area have shaped the historic use of the area and, subsequently, the types of historic cultural resource sites present in the Sloan Canyon NCA. Archival research gave little reason to anticipate that historic-period sites would be common, and inventory findings support this assessment.

3.5.2 Cultural Resource Inventories

The entire NCA contains cultural resource sites, although certain areas have higher site density. The Class I cultural resources inventory (a literature review) identified 54 known archaeological sites in and around the Sloan Canyon NCA. Most of these are prehistoric sites (85 percent), and 15 percent are historic sites. Patterns from the Class I inventory completed in November 2003 led to an expectation of low site densities throughout the NCA, outside of Sloan Canyon itself (Duke et al. 2003). This expectation was confirmed by results from a Class II cultural resources inventory. The Class II inventory consisted of a 20-percent sample field survey that identified 90 sites, nearly 80 percent of which are prehistoric sites.

Through the Class I and II cultural resource inventories, prehistoric sites have been assigned one of five site types and an associated activity assemblage. Each site type is characterized by the presence of certain artifacts in conjunction with site function and location. More-complex site types may have several different types of artifacts present together. The following site types were used as the basis for interpreting prehistoric activity assemblages in the NCA:

- Simple Flaked-Stone Assemblage
- Quarry Site/Segregated Reduction Sites
- Simple Milling Equipment/Pottery Assemblage Sites
- Distinctive Feature/Artifact Sites
- Complex Feature/Artifact Assemblage Sites.

About 20 percent of the sites identified in the Class II inventory contain a small number of millingstones, usually one or two, located in conjunction with temporary habitations. Another 10 percent have just a few rock art panels or a few simple rock features, such as cairns or rectangular rock alignments. The remaining third have more elaborate assemblages suggesting longer use and more varied activities. In comparison to the archaeological record found in most of the Mojave Desert, flaked-stone scatters in the NCA are scarce as are projectile points from past hunting activities.

The Sloan Canyon Petroglyph Site, located within the North McCullough Wilderness Area, contains more than 300 panels of rock art with more than 1,700 elements recorded along a .5-mile stretch of canyon. The rock art in the canyon includes both petroglyphs and pictographs. Although cultural affiliation has not been determined for each panel, archaeologists studying Sloan Canyon believe it has been used by all the Native American cultures mentioned earlier, and the canyon is culturally significant to the Native Americans of the area today. As a whole, the archaeological artifacts found in Sloan Canyon are in good condition, although impacts have occurred as a result of erosion, recreational use, and vandalism. In addition to Sloan Canyon, cultural resource inventories have found rock art at 19 other sites in and around the NCA but never in the quantities of, or as elaborate as, those in Sloan Canyon itself.

Compared to prehistoric activity within the NCA, historic use of the McCullough Range has been low (Duke et al. 2003). Activities that occurred within the NCA include mining (both related to an established mining

district as well as depression-era subsistence mining), and uses related to construction of Hoover Dam, prospecting, and livestock grazing sites. There are 15 historic sites identified, with mine complexes being the most common. Although the density of historic period resources is expected to be low within the NCA, property types likely to be encountered include the following:

- Adits (horizontal mine tunnels)
- Shafts
- Prospects
- Industrial (mining related) debris scatters
- Roadside debris scatters
- Small waste dumps
- Light-duty roads that exhibit few signs of having been "constructed"
- Isolated cabin sites
- Temporary tent camps
- Settlement-related debris scatters.

Of the historic sites identified to date, only two have been identified as potentially eligible for inclusion on the National Register of Historic Places (NRHP).

3.5.3 Sensitivity Model

Analysis of the Class II inventory results provided the groundwork for development of a site-sensitivity model for use in this planning effort. Various environmental and geographical criteria were applied, and following testing, the model identified acres of NCA in sensitivity classes as noted in Table 3.2.

It should be noted that the model, although a useful tool in estimation and analysis, is not meant to replace inventories completed by permitted archaeologists. Because the number of sites identified in the NCA is small, the model was developed and tested from a sample of sites that may not produce statistically significant results. This is due to extremely low density of sites in the NCA. The model may be used in analysis and in prioritizing areas for management and/or future inventory. Because of the sensitive and protected nature of cultural resource sites, information related to cultural resource site location or sensitivity level will not be identified further in this document. This information, however, was utilized in the impact analysis.

Table 3.2. Archaeological Prehistoric Sensitivity Classes

Sensitivity Classes	Acres in NCA	% of NCA
Low	17,477	36.1
Medium	23,082	47.6
High	7,891	16.3

Source: Duke et al. 2004.

3.5.4 Cultural Affiliation

As part of the RMP process, consultation was initiated with 15 Native American Tribes and bands that claim ancestral ties to, or traditional cultural use of, the lands in the NCA (See section 5.5.1.). An intensive ethnographic study was undertaken with the cooperation of Tribal officials and individual members to identify and evaluate the cultural resources of the NCA. Tribal representatives identified the Sloan Canyon Petroglyph Site as the only culturally significant area in the NCA, and these representatives have expressed concerns over the site's preservation and protection from damage and disturbance (Bengston & Kelly 2004).

3.6 Special Designations – Areas of Critical Environmental Concern

The 320-acre Sloan Canyon Rock Art District Area of Critical Environmental Concern (ACEC) was established by the Las Vegas RMP (BLM 1998a) to protect the significant prehistoric habitation and rock art values of the petroglyph area (Figure 3.5). The Las Vegas RMP provided further management direction by making this ACEC a right-of-way (ROW) exclusion area; closing the area to locatable minerals, salables, and solid leases; and requiring reclamation of temporary roads.

3.7 Visual Resources

The Sloan Canyon NCA is situated in a rugged, desert mountain range rising from the Las Vegas, Eldorado, and Hidden Valleys. Scenic resources were identified in the Sloan Canyon NCA Act as one of the purposes of the NCA, and the importance of this landscape is directly tied to its proximity to Las Vegas, one of the largest metropolitan areas in the mountain west. The natural character of the NCA directly contrasts with the highly modified human environments to the north, and the scenic quality is an important component of the setting for residents in the City of Henderson and the southern Las Vegas Valley.

The pristine quality of the visual resources in many portions of the NCA is reflective of its rugged and undeveloped nature; however, some areas of disturbance and development can be found. The northern portions of the NCA are highly visible from the adjoining City of Henderson and the entire Las Vegas Valley. This area is largely undisturbed, with several minor roads and ROWs slightly modifying the landscape. Along the southern and eastern edges of the NCA, the landscape preserves scenic areas highly visible from U.S. Highway 95, with only some visible landscape modifications. The western and northern edges of the NCA are partly visible from the Interstate 15 corridor and South Las Vegas Boulevard. A moderate level of landscape modification is visible in this area because of the presence of vehicle routes. The southern portion of the NCA is essentially unmodified, with a handful of power lines outside of the NCA on the east side providing the only significant landscape modification. Table 3.3 lists types of landscape modifications and describes existing modifications within the NCA.

Figure 3.5. Sloan Canyon Rock Art Site Area of Critical Environmental Concern

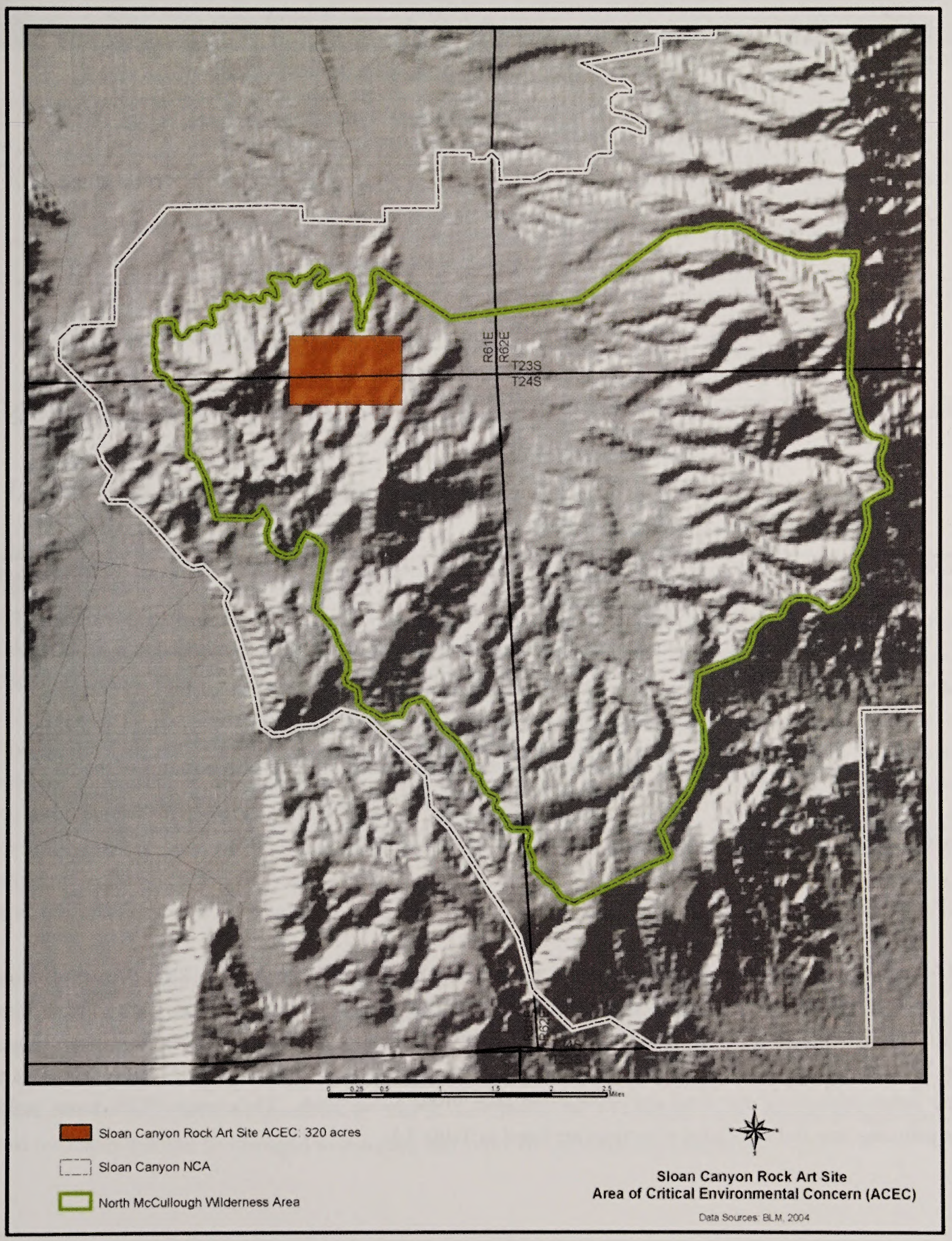


Table 3.3. Existing Landscape Modifications

Type of Landscape Modification	Description of Existing Modifications
Roads and trails	Numerous existing routes visible as landscape modifications. Roads concentrated in the northeastern portion of the NCA; other minor routes in and adjacent to other portions of the area.
Communication sites	Three ROWs for communication sites situated in the northern portion of the NCA along the ridgeline of the McCullough Range. Landscape modification noticeable because of high visibility of sites.
Power lines	Numerous power lines in and adjacent to the NCA. Power lines concentrated in northern and eastern areas of the NCA. Significant landscape modification in some areas.
Wildlife waters	Two constructed wildlife waters located in the NCA, one of these within the North McCullough Wilderness Area. Landscape modification minimal because of construction techniques and camouflaging.
Mine sites	Numerous mining claims once existed throughout the NCA. Most of these have now been abandoned. Landscape modification due to mining efforts varies from minimal to noticeable.
Litter	Temporary landscape modification due to litter in the northeastern portion of the NCA is significant. (Although litter would not typically be considered a landscape modification, the presence of extensive amounts of litter in portions of the NCA constitutes a longer-term landscape modification than typical litter issues.)

Source: BLM 2004b.

3.7.1 Current Management

BLM manages the scenic qualities of the NCA using Visual Resource Management (VRM). Visual resources in the NCA are currently managed according to the direction and classes prescribed through the *Las Vegas RMP* (BLM 1988a) and as modified by the Clark County Act, Title II ("Wilderness Areas"), which changed the VRM classification of the Wilderness. The VRM objective from the *Las Vegas RMP* (BLM 1988a) is to limit future impacts on the visual and esthetic character of the public lands. The current VRM classes within the planning area and associated objectives are listed in Table 3.4.

Table 3.4. Visual Resource Management Classes and Objectives

VRM Class	Management Objective
VRM I	To preserve the existing character of the landscape. Authorized actions may not modify existing landscapes or attract the attention of casual viewers.
VRM II	To retain the landscape's existing character. Authorized actions may not modify existing landscapes or attract the attention of casual viewers.
VRM III	To partially retain the existing character of the landscape. Authorized actions may alter the existing landscape but not to the extent that they attract or focus attention of the casual viewer.
VRM IV	To provide for activities involving major modifications of the landscapes existing character. Authorized actions may create significant landscape alterations and would be obvious to casual viewers.

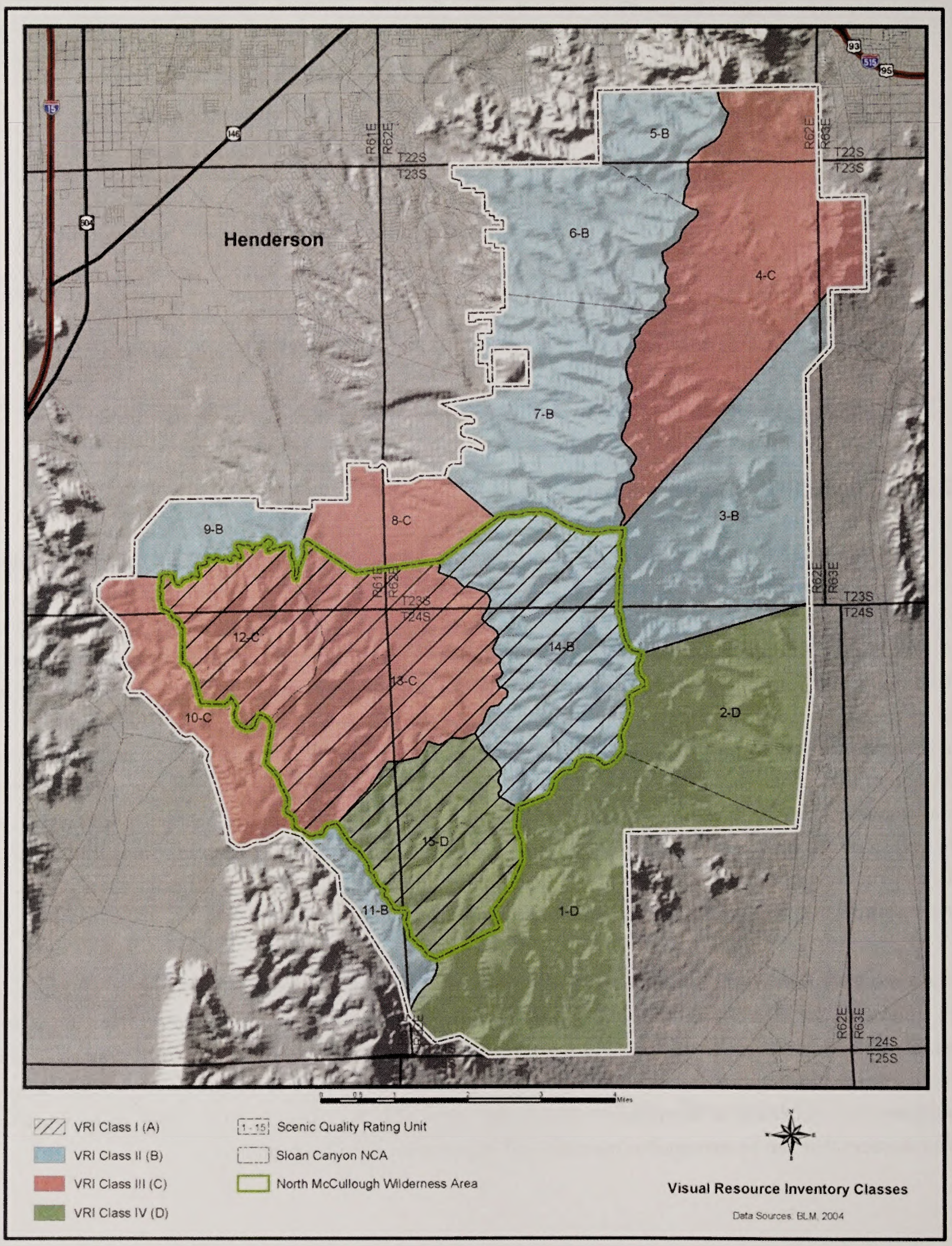
Source: BLM1998a.

3.7.2 Visual Resource Inventory

A Visual Resource Inventory of the NCA was conducted during the winter of 2003, and the resulting inventory classes are shown on Figure 3.6. The map also shows the Scenic Quality Rating Units (numbered 1-15) on which the Visual Resource Inventory Classes were based. A Scenic Quality Rating Unit is a portion of the landscape that displays primarily homogenous visual characteristics of the basic landscape features such as land and water forms, vegetation, and structures (BLM 2004a). Findings of the inventory indicate that large portions of the NCA contain little change to the existing landscape and would be conducive to management designed to retain that character. Some portions of the NCA contain moderate or extensive landscape modifications that detract from scenic quality. Such conditions make it challenging to conserve scenic resources. In these areas, opportunities may exist for restoration and mitigation of disturbances. Other areas of the NCA are so seldom seen that their visual resources do not appear to require intensive management. Nevertheless, they may be easily managed to retain existing landscape character and conserve scenic resources despite Visual Resource Inventory ratings of Class III or IV.

The inventory confirmed that the NCA contains large areas of undisturbed desert landscape that can continue to be conserved for scenic quality. Many of the areas inventoried provide scenic backdrops for the urban interface, while other portions of the NCA contain remote wilderness landscapes. A small portion of the NCA has lower visual appeal but remains suitable for a wider variety of multiple uses and provides ample opportunity for restoration of disturbance. The Sloan Canyon NCA contains a wide variety of high-quality visual resources that can be managed to maintain and improve upon existing conditions.

Figure 3.6. Visual Resource Inventory Classes



3.8 INTERPRETATION

To date, no interpretive materials or plans specific to the Sloan Canyon NCA have been developed. A comprehensive interpretive program, based, in part, on information in this RMP and Appendix E, *Sloan Canyon National Conservation Area Interpretive Strategy*, will be developed subsequent to completion of the RMP.

3.9 FACILITIES

Although the Sloan Canyon NCA offers a variety of recreational opportunities, there are currently no BLM-provided facilities. Consequently, recreational users have created small, scattered pullouts and parking areas adjacent to frequently visited locations.

3.10 LANDS AND REALTY

The Sloan Canyon NCA Act withdraws the NCA from all forms of entry and appropriation under the public lands laws, while protecting valid existing rights, such as power line ROWs. The issuance of ROWs, permits, and leases may continue under the act, provided they further the purposes of the NCA, and are subject to restrictions from other laws such as the Wilderness Act of 1964 or existing BLM management actions. All lands within the Sloan Canyon NCA boundary are managed by BLM, and there are no private land in-holdings.

3.10.1 Existing Rights-of-Way

According to the *Rights-of-Way Report* (BLM 2004b), 44 valid existing ROWs were on file when the NCA was designated. There are also several pending applications that were filed before the designation, and they will be processed to completion. The ROWs are primarily for power lines, flood control facilities, access roads, and communication sites and are confined primarily to the northern and eastern portions of the NCA (Figure 3.7).

The Nevada Power Company holds the majority of the ROWs, which are for power lines and supporting infrastructure. The City of Henderson is the second-largest holder of ROWs, which are mainly for flood control and road access. Telecommunication companies, Federal, State, local, and private agencies hold the remaining ROWs. Rental fees associated with these ROWs generate more than $536,000 annually (BLM 2004b). The ROWs are discussed below by category.

Figure 3.7. Existing and Authorized Rights of Way



Power Lines and Access Roads

All power line ROWs are held by the Nevada Power Company for service to the surrounding area and to the communication sites. The ROWs are used for both aboveground and underground facilities and to accommodate supporting infrastructure. The majority of these ROWs are issued for perpetuity, except for three power lines to the communication sites. Modification to these ROWs requires an approved amendment.

Flood Control Facilities

The City of Henderson holds all of the ROWs for flood control, including two detention and two debris basins. Several flood control facilities are outside the NCA adjacent to its boundaries. Clark County Regional Flood Control holds a ROW for a rain gauge within the NCA.

Communication Facilities

Three communication sites are located within the NCA: Black Mountain Upper (BM-1), Black Mountain 2 (BM-2), and Black Mountain 3 (BM-3). Each communication site contains multiple ROWs and/or leases for individual communication facilities. The holder/lessee can sublease to other parties the use of a facility for communication purposes without prior written consent of the authorized officer, if so provided by terms and conditions of the grant (43 CFR 2801.1-1(2)(f)). The Facility Manager remains the responsible ROW holder, in accordance with the *Black Mountain Site Communication Plan* (Appendix G).

3.10.2 City of Henderson Rights-of-Way

The City of Henderson holds ROWs for two roads and two trails. The ROW for the existing road is for access to a flood control facility, and two new trail ROWs were granted as part of the Sloan Canyon Act. The Sloan Canyon NCA Act directed BLM to grant the City of Henderson a ROW for the Anthem Trail (N-76312) and the North McCullough Road and Trail (BLM Case File No. N-65874).

The North McCullough Road and Trail ROW was partially granted in May 2003. The partial issuance was for the trail portion of the application. However, since the Sloan Canyon NCA Act requires BLM to recommend a location for the North McCullough Road as part of this RMP, the final North McCullough Road ROW will be issued after completion of the RMP and subsequent planning issues are resolved.

Two alignment corridors have been delineated for potential roadway locations. The potential roadway alignments, identified as the Northern Corridor and the Southern Corridor, were identified through numerous field visits, a topography evaluation, and public input. The potential alignments are discussed in detail in Chapter 2. The City of Henderson plans to provide facilities such as trailheads and parking pullouts along the North McCullough Road, and these proposed areas will be incorporated into the Plan of Development submitted as part of the ROW application amendment.

3.10.3 Unauthorized Uses

Several unauthorized uses were identified as part of the *Rights-of-Way Report* (BLM 2004b). A telecommunications facility is located in an area where a ROW has expired, and the original lessee has since vacated the area. The Nevada Power Company has an unauthorized use within an existing ROW (N-59499) and is in the process of filing an amendment to resolve the trespass. Because the public land boundary for the NCA is not clearly marked, unauthorized uses such as illegal motorized vehicle travel and dumping could occur in the future.

3.10.4 Filming and Photography

Historically, no commercial movie filming or photography has been authorized within the NCA boundary.

3.11 Transportation (Licensed Motorized Vehicles)

The NCA is located in the rapidly growing metropolitan area of Clark County, Nevada—a region supported by an urban transportation network that serves the Las Vegas Valley. The NCA is flanked by Interstate 15 to the west, Interstates 215 and 515/Highways 93 and 95 to the north, and U.S. Highway 95 to the east. Figure 3.8, Transportation Systems Map, shows the NCA in the context of the regional transportation network. New development is occurring along the northern and western NCA border in the City of Henderson, and it is likely that local traffic patterns will change in the future. Figure 3.9, Roads and Rates Proposed for Construction and Licensed Motorized Vehicle Designation and Routes Map, shows the current roads within the NCA, all of which are dirt and unmaintained except for those maintained by ROW holders. At this time, BLM has not designated any roads within the NCA as open to the public.

3.12 Vegetation Management

Vegetation within the Sloan Canyon NCA is diverse and representative of the Mojave Desert ecosystem, which covers the southern portion of Nevada, southwestern Utah, southeastern California, and extends into northwestern Arizona. The Mojave Desert is the smallest of the four North American deserts and is considered intermediate both geographically and floristically of the Great Basin Desert to the north and the Sonoran Desert to the south (MacMahon 1997).

The vegetation communities within the Sloan Canyon NCA are the result of the interaction between soils, geology (bedock and surficial), climate, geomorphology, landforms, and morphometry (elevation, aspect, and slope). Typical to the region, the area is dominated by sparse desert vegetation associated with bajadas, inset fans, and rocky outcrops. There are no permanent streams within the NCA; however, many of the dry washes show evidence of past surface water and debris flow.

Figure 3.8. Transportation System

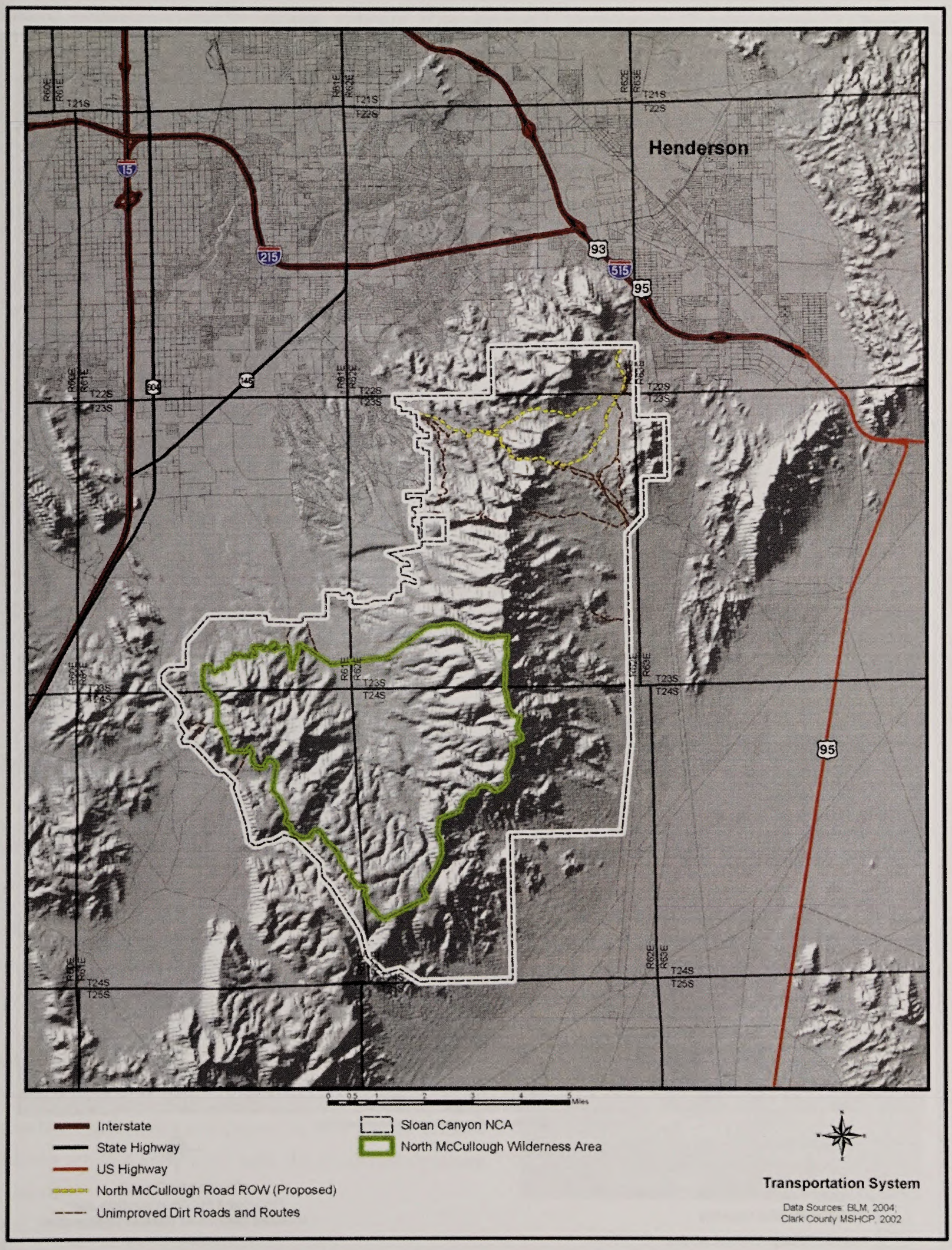
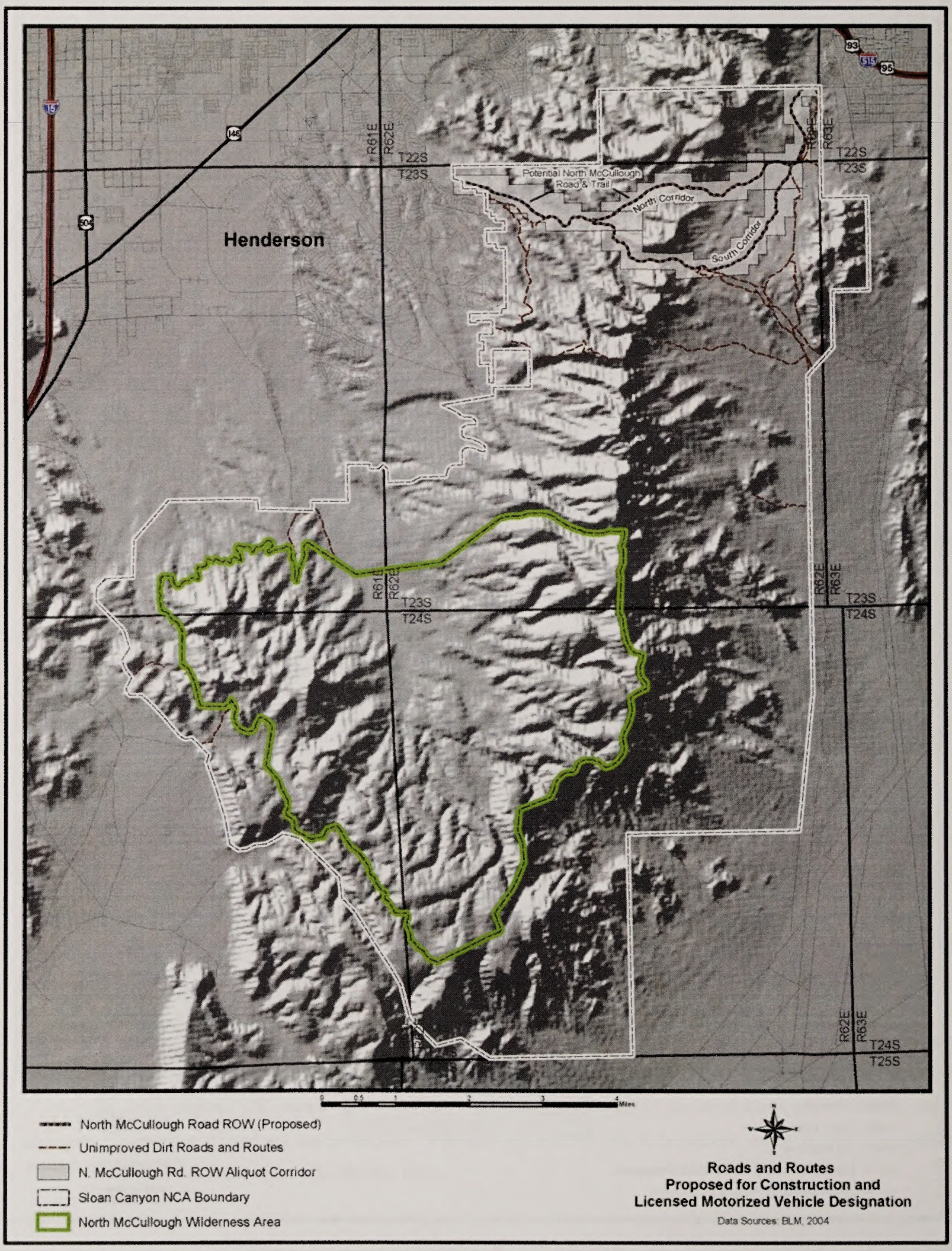


Figure 3.9. Roads and Routes Proposed for Construction and Licensed Motorized Vehicle Designation



The Mojave Desert scrub community in the Sloan Canyon NCA is primarily composed of low, widely spaced shrubs, including the creosote bush (*Larrea tridentata*) and the white bursage (*Ambrosia dumosa*). Other affiliated community shrubs include ephedra (*Ephedra* spp.), brittlebrush (*Encleia virginensis*), burro bush (*Hymenoclea salsola*), bebbia (*Bebbia juncea*), and desert saltbrush (*Atriplex polycarpa*). Characteristic species associated with the Mojave Desert include Mojave yucca (*Yucca schidigera*), teddybear cholla (*Opuntia bigeloviai*), and hedgehog cacti (*Echinoceres* spp.) Short-lived annual and perennial wild flowers appear at the lower elevations in late March, April, and May, when prompted by winter rains.

3.12.1 Vegetation Communities

Four vegetation communities are represented within the Sloan Canyon NCA: (1) volcanic basalt slope communities, (2) moderate creosote (greater than 30 percent cover), (3) sparse creosote/bursage mix, and (4) desert wash communities (BLM 2004c). Vegetation community descriptions are listed below. The distribution of vegetation communities within the NCA is presented in Figure 3.10.

Volcanic Basalt Slope Community

The Volcanic basalt slope community is found on the steeper north-facing slopes of the NCA. This_community contains basalt rock outcrops, and the plant species composition is highly variable. Creosote is present in most of this vegetation community; however, north-facing slopes may lack creosote canopy cover. Shrub species present include creosote (*Larrea tridentata*), ephedra (*Ephedra spp.*), prickly pear (*Opuntia spp.*), and perennial and annual grasses and forbs.

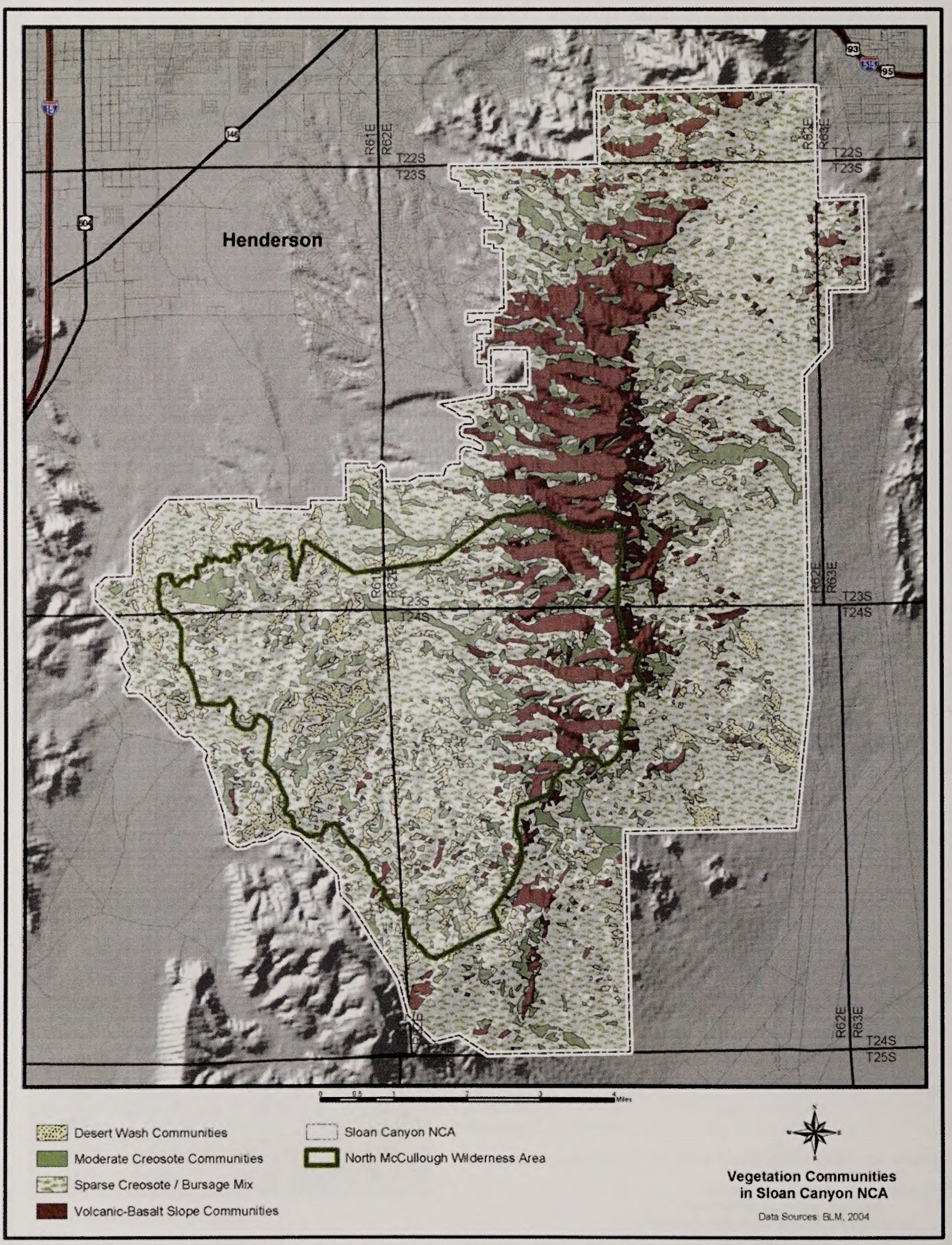


Moderate Creosote

The Moderate creosote community is dominated by creosote (greater than 30-percent canopy cover) and also contains bursage (*Ambrosia dumosa*), ephedra (*Ephedra spp.*), and in some areas a significant amount of Cholla cactus (*Opuntia spp.*). The moderate creosote community has a limited distribution within the NCA and may be associated with increased soil moisture availability. Saltbush (*Atriplex spp.*) and perennial and annual grasses and forbs are also associated with the moderate creosote community.



Figure 3.10. Vegetation Communities in Sloan Canyon NCA



Sparse Creosote/Bursage Mix

The sparse creosote community is the most abundant community within the Sloan Canyon NCA. The sparse creosote vegetation community is an open sparse plant community dominated by creosote bush (*Larrea tridentata*). Ephedra (*Ephedra*), bursage (*Ambrosia dumosa),* and saltbush (*Atriplex spp.),* are also common shrub species in the sparse creosote community. The canopy cover of vegetation in this community is typically less than 30 percent, and desert pavement dominates some areas. Annual and perennial grasses and forbs are also present.



Desert Wash Communities

Desert washes within the Sloan Canyon NCA are ephemeral watercourses that are dry most of the year. The increased quantity of available water, even for brief periods, in desert washes supports vegetation that differs from that of adjoining plant communities in species composition, structure, and soil moisture availability.



Most occurrences are at elevations lower than 5,000 feet within sandy arroyos, washes, and subirrigated bajadas. Dominant species include cat claw (*Acacia greggii*), desert willow (*Chilopsis linearis ssp. arcuata*), Mormon tea (*Ephedra spp.*), and indigo bush (*Psorothamnus fremontii*).

3.12.2 Special Status Species

Special Status Species are those species that are either listed, candidates for listing, or identified by the BLM as being important for consideration in management actions. Within the Sloan Canyon NCA, the rosy two-tone beardtongue (*Penstemon bicolor* ssp. *roseus*), white-margined beardtongue (*Penstemon albomarginatus*), and blue diamond cholla (*Opuntia whipplei* var. *multigeniculata*) have habitats that have been identified within or adjacent to Sloan Canyon NCA (Bostick 1973; Marrs-Smith personal communication 2004 [Table 3.5]).

Figure 3.11 illustrates the results of a GIS model developed as part of this planning process to determine potential areas within the Sloan Canyon NCA where these species could occur, as well as recorded occurrences of the two Special Status Species. The potential habitat areas are more likely to contain possible populations of these species; however, on the basis of the broad criteria used to develop these models, other areas of the NCA also have the potential for populations of these species.

Table 3.5. Flora Potentially Occurring in Sloan Canyon NCA

NV BLM Sensitive – Nevada Bureau of Land Management Plan Species That May Occur Within NCA

USFWS/ESA Candidate – U.S. Fish and Wildlife Endangered Species Act Candidate Species for Listing

NNHP Sensitive MSCHP Watch – Nevada Natural Heritage Program Plant Species That May Occur Within NCA

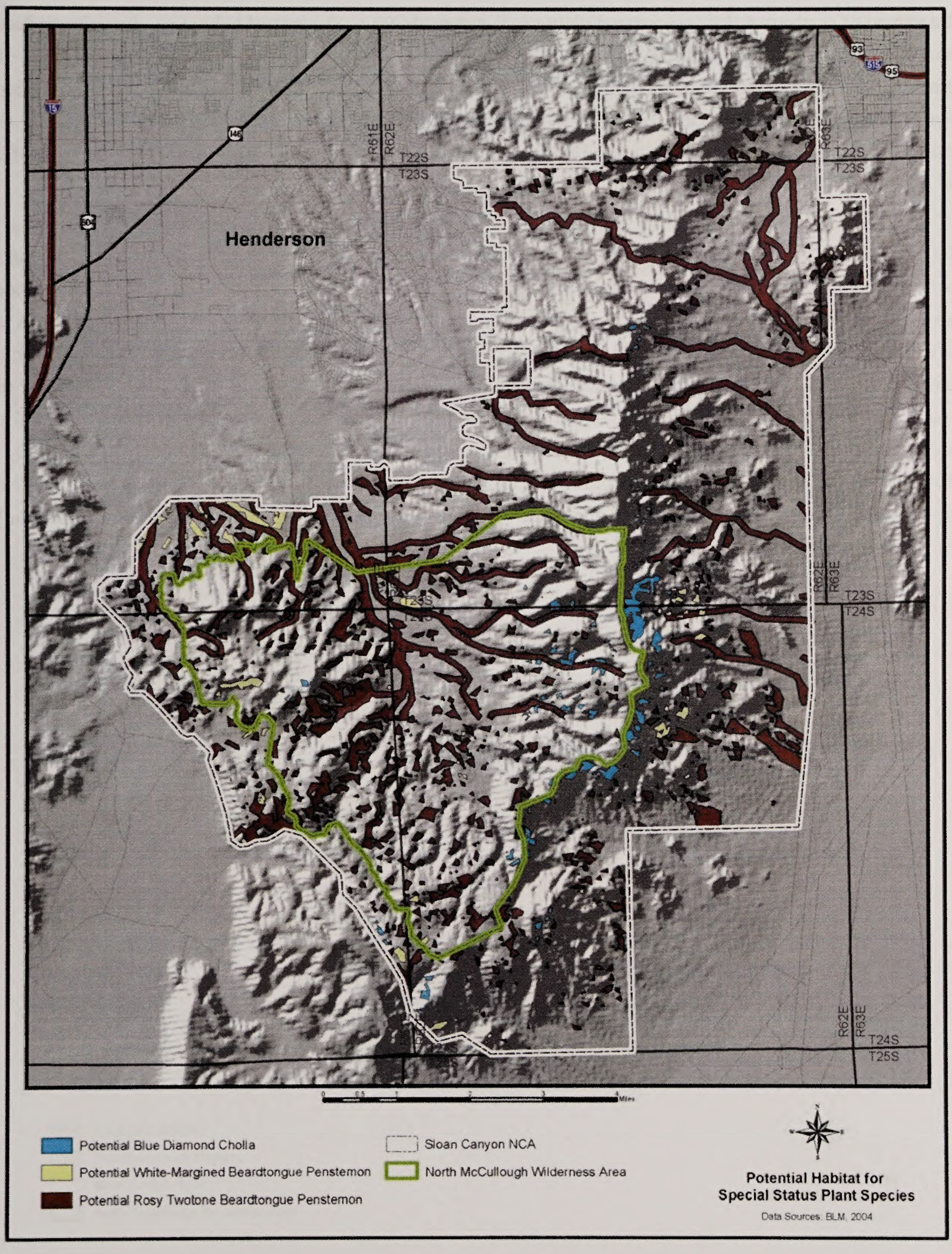
MSHCP Covered – (Clark County) Multiple Species Habitat Conservation Plan Species Within Ecosystems of the Sloan Canyon NCA

State Listed Critically Endangered – Critically Endangered and Threatened With Extinction by the Nevada State Forester Pursuant to NRS 527.270

Common Name	Scientific Name	Characteristics	NV BLM Sensitive	USFWS/ESA Candidate	NNHP Sensitive MSHCP Watch	MSCHP Covered	State Listed Critically Endangered
Blue Diamond cholla	*Opuntia whipplei* var. *multigeniculata*	Restricted to dry limestone hills underlain by gypsum, occurring mostly on north-facing slopes and exposed ridges	●	●		●	●
Rosy Twotone beardtongue	*Penstemon bicolor* ssp. *roseus*	Occurs on rocky calcareous, granitic, or volcanic soils in washes, roadsides, scree at outcrop bases, rock crevices, or similar places receiving enhanced runoff, in the creosote-bursage, blackbrush, and mixed-shrub zones.	●	●	●		
White-Margined beardtongue	*Penstemon albomarginatus*	Occurs on sand deposits on leeward side of dry lakebeds between 1,500 and 3,600 feet elevation in the wash bottoms of outwash canyons and occasionally on slopes above them.	●	●		●	

Source: BLM 2004c.

Figure 3.11. Potential Habitat for Special Status Plant Species

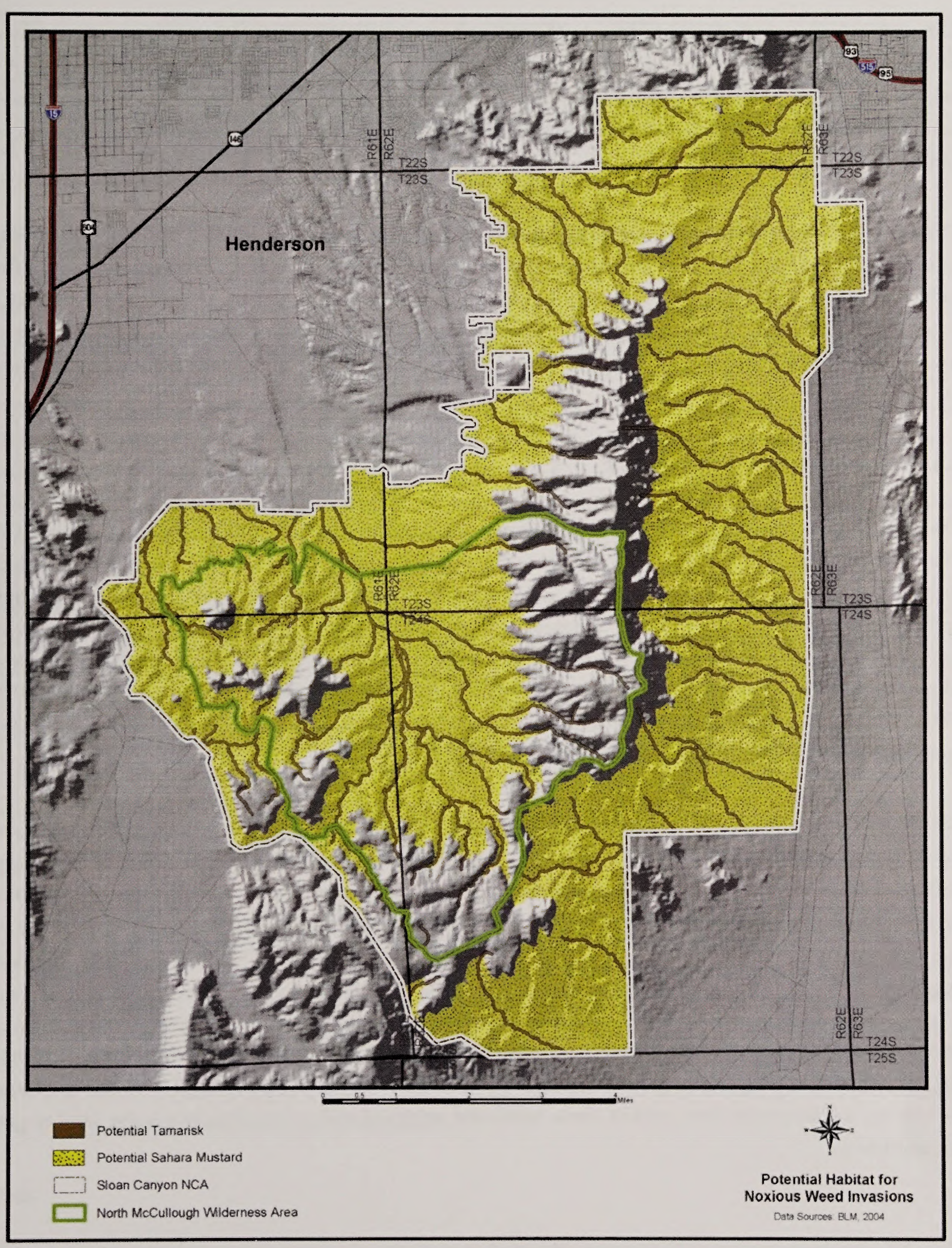


3.12.3 Noxious and Invasive Weeds

The spread of noxious and invasive weed plant species contributes to the loss of habitat productivity, reduced water quality and quantity, reduced structural and species diversity, and loss of wildlife-specific habitat. In some instances, these species are hazardous to human health and welfare as emphasized in the Federal Noxious Weed Act (Public Law 93-629) and Executive Order 13112, Invasive Species. To minimize the potential of non-native seeds being brought into the area, NDOW has issued guidance to hunters regarding the use of animal feed (NDOW 2003).

Most, if not all, non-native plant infestations begin as small outbreaks in disturbed areas, such as utility corridors, trails, range improvement footprints, roadsides, ROWs, and mining disturbances. Seeds of non-native plants may have been transported to the area in feed for pack animals, re-vegetation grass mixtures, or blown in from distant sources. As non-native plants find disturbed areas with no natural competition, they quickly spread, overtaking native vegetation and reducing the biological diversity and ecologic viability of the ecosystem. Although a survey has not been completed, an immediate concern is the potential invasion of Sahara mustard (*Brassica tournifortii*), which utilizes sandy soils at lower elevations, and tamarisk (*Tarmarix spp.*), which could occupy wash bottoms. Figure 3.12 illustrates the results of a GIS model developed as part of this planning process to determine potential areas within the Sloan Canyon NCA where these species could occur.

Figure 3.12. Potential Habitat for Noxious and Invasive Weeds



3.13 WILDLIFE MANAGEMENT

Although only one ecosystem type, Mojave Desert scrub, is represented in the NCA, it supports a variety of wildlife species. To date, the actual number of wildlife species occurring within the Sloan Canyon NCA is unknown; however, vertebrate wildlife species found within its borders represent three major classes: reptiles, birds, and mammals. Because there are no natural perennial water sources, no known fish, mollusks, or amphibian species occur.

The primary natural factors that influence populations and distribution for wildlife are water availability, vegetation, topography, and weather patterns. Water supplies, both open and below ground, are limited within the NCA, with springs and seeps serving as areas of habitat concentrations. The Sloan Canyon NCA is composed of igneous rocks, which provide small caves that act as habitat or escape cover for a variety of species. In addition to the natural factors in Sloan Canyon, human presence and activities such as recreation use impact wildlife distribution.

3.13.1 Regulatory Framework

The NDOW is responsible for the direct management of wildlife populations within the Sloan Canyon NCA. The BLM Las Vegas Field Office is responsible for managing the habitat but also performs an integral role in sustaining and ensuring the ecological health and viability of wildlife populations. The U.S. Fish and Wildlife Service (USFWS) provides regulatory oversight for all species that are listed, proposed for listing, or candidates for listing as threatened or endangered under the Endangered Species Act (ESA) and also administers the Migratory Bird Treaty Act, which protects migratory bird species. The *Las Vegas RMP* (BLM 1998a) and the *Desert Tortoise Recovery Plan* (USFWS 1994) currently provide the BLM Las Vegas Field Office up-to-date direction for habitat and wildlife management.

The Sloan Canyon NCA Act requires BLM to provide access for installing, repairing, maintaining, and reconstructing water developments, including water guzzlers, that would enhance the NCA by promoting healthy, viable, and more widely distributed wildlife populations. Currently, the NCA contains two big game guzzlers with another directly adjacent to the NCA southeastern boundary.

Hunting

Annually, NDOW issues four limited entry permits for the hunting of bighorn sheep in the North and South McCullough Range, which includes the NCA (NDOW 2003). The NDOW also permits recreational hunting for bobcats and mountain lions, rabbits, dove, quail, and coyote as well as trapping for coyote, bobcat, gray fox, and kitfox.

Reptile Collecting

Of the State's 54 native reptile species, 36 may be commercially collected in the State of Nevada through issuance of a permit from NDOW (Nevada Department of Conservation and Natural Resources [NDCNR] 2002). There are concerns about the potential impact of this collection on total population numbers and the potential for species integrity to be diminished as large reptiles are harvested; however, a baseline population and distribution data are lacking for most reptile species, making it difficult to determine long-term effects of commercial collecting and unlimited reptile harvesting on reptile populations (NDCNR 2002).

Migratory Birds

The United States has ratified international conventions regarding the protection of migratory birds as implemented by the Migratory Bird Treaty Act (MBTA) of 1918 (16 United States Code 703-711). The MBTA prohibits "taking," which is the killing, possession, or transport of any migratory bird or their eggs, parts, or nests except as authorized by a valid permit. These actions may be permitted only for educational purposes, and harvest is limited to levels that prevent overutilization. Executive Order 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*, was issued in January 2001 and emphasizes that Federal actions are subject to the MBTA and directs Federal agencies (such as BLM) to evaluate the effects of agency actions in National Environmental Policy Act documents like this Draft Environmental Impact Statement.

Under the MBTA, permits can be issued by USFWS for the intentional take of specific birds and nests that have been identified before application for the permit; however, no permits can be issued for take that is incidental to the action being taken (i.e., incidental take). All native bird species likely to be found within the NCA are protected under the MBTA, and any incidental take of these protected species would constitute a violation of the MBTA.

3.13.2 Potential Wildlife Species

Mammals

Small mammals expected to occur within the NCA include the black-tailed jackrabbit (*Lepus californicus*), desert cottontail (*Sylvilagus audubonii*), desert kangaroo rat (*Dipodomys deserti*), rock squirrel (*Citellus variegatus*), and antelope ground squirrel (*Ammuspermophilus leucurus*). Bat species such as the big free-tailed bat (*Tadarida macrotis*) and Mexican free-tailed bat (*Tadarida brasiliensis*) are also known to occur in small caves of the NCA (Nevada Bat Working Group [NBWG] 2002). Larger mammal species include the coyote (*Canis latrans*), kit fox (*Vulpes macrotis*), desert bighorn sheep (*Ovis canadensis nelsoni*), mule deer (*Odocoileus hemionus hemionus*), bobcat (*Lynx rufus*), and mountain lion (*Felis concolor*).

Birds

Bird species expected to occur within the NCA include the black-throated sparrow (*Amphispiza bilineata*), cactus wren (*Campylorhynchus bruneicaphillus*), black-chinned hummingbird (*Archilochus alexandri*), Anna's

hummingbird (*Calypte anna*), broad-tailed hummingbird (*Selasphorus platycercus*), Gambel's quail (*Callipepla gamebelii*), mourning dove (*Zenaida macroura*), greater roadrunner (*Geococcyx californianus*), phainopepla (*Phainopepla nitens*), loggerhead shrike (*Lanius ludovicianus*), red-tailed hawk (*Buteo jamaicensis*), and Swainson's hawk (*Buteo swainsoni*).

Reptiles

Reptiles are the most common and diverse species that occur within the NCA. Lizards that are expected to occur within the NCA include the desert iguana (*Dipsosaurus dorsalis*), chuckwalla (*Sauromalus obesus*), western banded gecko (*Coleonyx variegates*), collared lizard (*crotaphytus collarus*), side-blotched lizard (*Uta stansburiana*), Gila Monster (*Heloderma suspectum*), desert horned lizard (*Phyrnosoma platyrhinos*), long-nosed leopard lizard (*Gambelia wislizenii*), and the long-tailed brush lizard (*Urosaurus graciosus*). Snakes expected to occur include the coachwhip (*Masticophis flagellum*), Mojave rattlesnake (*Crotalus scutulatus*), sidewinder (*Crotalus cerastes*), speckled rattlesnake (C*rotolous muertensis*), western patch-nosed snake (*Salvadora hexalepis*), long-nosed snake (*Rhinocheilus lecontei*), and the spotted leaf-nosed snake (*Phyllorhynchus decurtatus*). The desert tortoise (*Gopherus agassizi*) is the only tortoise located within the NCA.

3.13.3 Special Status Species

Wildlife Special Status Species include species federally listed as threatened and endangered, proposed for listing, or candidates for listing under the ESA. They also include species designated by each BLM State Director as sensitive and those listed, or proposed for listing, by a State in a category implying potential endangerment or extinction. BLM is mandated to protect and manage threatened, endangered, candidate, proposed, and BLM sensitive wildlife species and their habitat. BLM is also required to protect and manage sensitive species jointly identified with the appropriate State agency. The State of Nevada employs the Nevada Natural Heritage Program's (NNHP) list for an official list of State sensitive, threatened, or endangered wildlife species. Table 3.6, Fauna Special Status Species Potentially Occurring in Sloan Canyon NCA, presents the lists of species that could occur within the NCA and are either federally protected, BLM sensitive species, part of the NNHP, or included in the *Clark County MSHCP* (CCDCP 2000).

Federally Protected Species

The BLM is responsible for the protection of federally listed, proposed for listing, or candidates for listing species in the NCA, which includes the protection of habitat. Presently, the Mojave population of the desert tortoise (*Gopherus agassizii*) is listed as threatened and is the only federally protected species located in the NCA (USFWS 2003). The USFWS has developed a recovery plan for the species and has identified and designated critical habitat within the BLM Las Vegas Field Office jursidiction. None of this critical habitat lies within the NCA (USFWS 1994).

BLM Sensitive Species

BLM sensitive species are not federally listed, proposed, or candidate species or State of Nevada-listed species; however, the Agency's policy is to provide these species with the same level of protection provided for candidate species. This ensures that actions authorized, funded, or carried out by BLM do not contribute to the need for the species to become listed. According to BLM policy (BLM manual 6840.06 E), a species may be listed as sensitive if it—

- Could become endangered or extirpated from a State, or within a significant portion of its range, in the foreseeable future
- Is under status review by the USFWS
- Is undergoing significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution and/or population or density such that federally listed, proposed, candidate, or State-listed status may become necessary
- Typically consists of small and widely dispersed populations
- Inhabits ecological refugia or specialized or unique habitats
- Is State listed but may be better conserved through application of BLM sensitive species status.

Table 3.6. Fauna Special Status Species Potentially Occurring in Sloan Canyon NCA

Common Name	Scientific Name	Habitat Characteristics	NV BLM Sensitive Wildlife[1]	NNHP[2]	MSHCP Covered Species[3]	MSHCP High Priority Evaluation Species[4]
Mammals						
Palmer's chipmunk	*Tamias palmeri*	Pinyon-juniper and juniper habitats, residing primarily in rocky outcrops in these habitats.			●	
Desert valley kangaroo mouse	*Microdipodops megacephalus albiventer*	Creosote scrub	●	●		
Desert bighorn sheep	*Ovis canadensis nelsoni*	Steep rocky mountainous terrain above desert floor, access to surface water	●	●		
Long-haired myotis	*Myotis evotis*	Brush, woodland, and forest habitats, prefers coniferous woodlands and forests			●	
Long-legged myotis	*Myotis volans*	High open woods (pinyon-juniper to coniferous) and mountainous terrain			●	
Desert pocket mouse	*Chaetodipus penicillatus sobrinus*	Sandy or soft alluvial soils along stream bottoms, desert washes, and valleys.				●
Desert kangaroo rat	*Dipodomys deserti*	Sandy to rocky soils in desert locations with little vegetation.				●
Kit fox	*Vulpes macrotus*	Dry meadows and grasslands, scrub, foothills, and other arid areas.				●

1 ***NV BLM Sensitive Wildlife*** — *Nevada Bureau of Land Management Wildlife Species That May Occur Within NCA*

2 ***NNHP*** — *Nevada Natural Heritage Program Species That May Occur Within NCA*

3 ***MSHCP Covered Species*** — *(Clark County) Multiple Species Habitat Conservation Plan Covered Species Within Ecosystems of the Sloan Canyon NCA*

4 ***MSHCP High Priority Evaluation Species*** — *(Clark County) Multiple Species Habitat Conservation Plan Within Ecosystems of the Sloan Canyon NCA*

Table 3.6. Fauna Special Status Species Potentially Occurring in Sloan Canyon NCA

Common Name	Scientific Name	Habitat Characteristics	NV BLM Sensitive Wildlife[1]	NNHP[2]	MSHCP Covered Species[3]	MSHCP High Priority Evaluation Species[4]
Pygmy rabbit	*Brachylagus idahoensis*	Shrubland habitats, typically in dense stands of old-growth sagebrush		●		
Silver-haired bat	*Lasionycteris noctivagans*	Hot, semi-arid, shrubby habitats, especially mesquite and brushy pinyon-juniper woodlands; also chaparral, desert scrub. Thorn scrub, oak-juniper woodland, pinyon-juniper, juniper-cholla, mesquite, dry chaparral.			●	
Birds						
Northern goshawk	*Accipiter gentiles*	Creosote scrub	●	●		
Golden eagle	*Aquila chrysaetos*	Shrubby vegetation near clearings and open areas for foraging; otherwise, a mosaic of altered and unaltered habitat on a landscape scale	●	●		
Prairie falcon	*Falco mexicanus*	Perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub areas	●	●		
Juniper titmouse	*Baeolophus griseus*	Woodlands with high overstory juniper cover, areas with senescent trees	●	●		
Ferruginous hawk	*Buteo regalis*	Sagebrush scrub, pinyon-juniper, montane scrub, yellow pine-white fir, lodgepole pine-red fir, cliff faces, salt-tolerant desert scrub, rangeland	●	●		
Swainson's hawk	*Buteo swainsoni*	Grassland, shrubland, agricultural areas where it has open areas to forage and where roost sites are available	●	●		
Pinyon jay	*Gymnorhinus cyanocephalus*	Dry mountain slopes and foothills; rarely found away from pinyon-juniper forests	●	●		
Arizona bell's vireo	*Vireo bellii arizonae*	Nests in areas with low aquatic and herbaceous cover, and lowland riparian areas		●		
Loggerhead shrike	*Lanius ludovicianus*	Open grassland or agricultural areas with some shrubs or small trees for perching, hunting, nesting. Prefers habitats with relatively short grasses and forbs.		●		

Table 3.6. Fauna Special Status Species Potentially Occurring in Sloan Canyon NCA

Common Name	Scientific Name	Habitat Characteristics	NV BLM Sensitive Wildlife[1]	NNHP[2]	MSHCP Covered Species[3]	MSHCP High Priority Evaluation Species[4]
Phainopepla	*Phainopepla nitens*	Desert, scrubland, riparian, and woodland habitat, areas supporting desert trees bearing mistletoe, These trees typically are mesquite, catclaw acacia, and juniper.		●	●	
Vesper sparrow	*Pooecetes gramineus*	Breeds in sagebrush and other shrub habitats with sparse vegetation. Occupies grasslands and croplands in winter, often using scattered shrubs and patches of tall herbs for cover.		●		
Gray vireo	*Vireo vicinior*	Arid, shrub-covered slopes in pinyon-juniper, juniper, and chamise-redshank chaparral habitats on foothills and mesas.		●		
American peregrine falcon	*Falco peregrinus anatum*	All wetlands, marsh, riparian, sagebrush scrub, springs			●	
Western burrowing owl	*Athene cunicularia hypugea*	Open, well-drained grasslands, steppes, deserts, prairies, and agricultural lands.				●
Pale Townsend's big-eared bat	*Corynorhinus townsendii pallescens*	Shrub-steppe or forest edge in rocky outcrops or caves.				●
Reptiles						
Western red-tailed skink	*Eumeces gilberti rubricaudatus*	Grassland, open chaparral, open pine forests	●	●	●	
Gila Monster	*Heloderma suspectum*	Mountain foothills dominated by saguaros and palo verde trees, also washes that extend down into valleys	●	●		

Table 3.6. Fauna Special Status Species Potentially Occurring in Sloan Canyon NCA

Common Name	Scientific Name	Habitat Characteristics	NV BLM Sensitive Wildlife[1]	NNHP[2]	MSHCP Covered Species[3]	MSHCP High Priority Evaluation Species[4]
Banded Gila Monster	*Heloderma suspectum cinctum*	Mountain foothills dominated by saguaros and palo verde trees, also washes that extend down into valleys.				●
Sonoran mountain kingsnake	*Lampropeltis pyromelana*	Chaparral woodland and pine forests in mountainous regions, brushy rocky canyons, talus slopes, and near streams and springs	●	●		
Short-horned lizard	*Phrynosoma douglassii*	Variety of dry habitats, including sagebrush, grassland, and open woodlands, variety of soil types, including rocky soils, but prefer areas with some loose or sandy soil.	●			
Chuckwalla	*Sauromalus obesus*	Areas of large rocks and boulders on alluvial fans and in canyons	●			
Western Chuckwalla	*Sauromalus obesus obesus*	Rocky, creosote bush, desert			●	
Desert tortoise	*Gopherus agassizii*	Typically relatively flat valley bottoms. Other suitable habitat includes salt-tolerant desert scrub, Joshua tree woodland, creosote scrub, sagebrush scrub, pinyon-juniper, montane scrub, and rangeland		●	●	
Sonoran mountain kingsnake	*Lampropeltis pyromelana*	Chaparral woodland and pine forests in mountainous regions, brushy rocky canyons, talus slopes, and near streams and springs	●			
Banded gecko	*Coleonyx variegatus*	Rocky or sandy desert and semiarid locales in oak and pinyon-juniper woodlands			●	
Great Basin collared lizard	*Crotaphytus insularis bicinctores*	Occurs mainly in xeric, sparsely vegetated rocky areas; sometimes in adjacent areas lacking much rock; perches atop rocks			●	

Table 3.6. Fauna Special Status Species Potentially Occurring in Sloan Canyon NCA

Common Name	Scientific Name	Habitat Characteristics	NV BLM Sensitive Wildlife[1]	NNHP[2]	MSHCP Covered Species[3]	MSHCP High Priority Evaluation Species[4]
Large-spotted leopard lizard	*Gambelia wislizenii wislizenii*	Desert and semidesert areas with scattered shrubs or other low plants, especially areas with abundant rodent burrows.			●	
Speckled rattlesnake	*Crotalus mitchelli*	Inhabits rocky hillsides and outcrops and is found near alluvial deposits in the desert			●	
Mojave green rattlesnake	*Crotalus scutulatus scutulatus*	Occurs in sparsely vegetated arid lowlands, grass-covered flatlands, and less often along the lower mountain slopes below 4,000 ft. Prefers high, barren desert dotted with creosote bush, mesquite, and cactus.			●	
Desert iguana	*Dipsosaurus dorsalis*	Creosote bush desert with hummocks of loose sand and patches of firm ground with scattered rocks			●	
Western leaf-nosed snake	*Phyllorhynchus decurtatus*	Rocky, gravelly, or sandy creosote bush desert.			●	
Sonoran lyre snake	*Trimorphodon biscutatus lambda*	Chiefly in rocky areas of lowlands, mesas, and lower mountain slopes; desert grassland, desert scrub, chaparral, pinyon-juniper and oak woodland, open coniferous forest, thornscrub, and "thornforest."			●	
Glossy snake	*Arizona elegans*	Barren to sparse shrubby desert, sagebrush flats, grassland, sandhills, chaparral slopes, and oak-hickory woodland; generally in open areas with sandy or loamy soil, though rocks may be present.			●	
California (common) kingsnake	*Lampropeltis getulus californiae*	Wide distribution, occurs in nearly all habitats (exclusive of high mountains), is most abundant in valley-foothill riparian situations and in other habitats occurring in the vicinity of irrigated agriculture.			●	
Western long-nosed snake	*Rhinocheilus lecontei lecontei*	Deserts, prairies, arid river valleys, shrubland.			●	

Table 3.6. Fauna Special Status Species Potentially Occurring in Sloan Canyon NCA

Common Name	Scientific Name	Habitat Characteristics	NV BLM Sensitive Wildlife[1]	NNHP[2]	MSHCP Covered Species[3]	MSHCP High Priority Evaluation Species[4]
Sidewinder	*Crotalus cerastes*	Open desert terrain in fine windblown sand, desert flats with sandy washes or sand dunes sparsely vegetated with creosote bush or mesquite; sometimes in rocky or gravelly sites.			●	
Southern desert horned lizard	*Phyrnosoma platyrhinos calidiarum*	Areas of sandy, gravelly soil, windblown sand; flat arid stretches where rocks or scrub vegetation are present.				●

Sources: BLM 2003e, NDOW 2004b, CDFG 2004, NPS 2004.

Nevada Natural Heritage Program

The NNHP is designed to coordinate the resource needs of Nevada's diverse biological heritage with human activities. This is accomplished by maintaining a detailed inventory and up-to-date databases on the locations, biology, and conservation status of all threatened, endangered, and sensitive species and biological communities in Nevada. These data are used to assist with the evaluation of conservation priorities and to supply information to meet conservation, planning, development, land management, and research needs (NNHP 2003).

The NNHP provides the citizens of Nevada with a cost-effective "early warning system" designed to minimize future resource conflicts and to help prevent species from becoming threatened or endangered by encouraging less-costly, less-burdensome, and more-proactive conservation measures now. As of August 5, 2002, the State of Nevada has approximately 181 Clark County plants and animals on the Sensitive Animals and Plant and Lichen Lists and on the Nevada Plant and Animal Watch List (NNHP 2003).

Clark County Multiple Species Habitat Conservation Plan

Clark County, in conjunction with Federal and State agencies, as well as local communities, prepared the *Clark County MSHCP* (CCDCP 2000) for Clark County, Nevada, for the purpose of supporting the issuance of a permit(s) under Section 10(a) of the ESA to "(1) allow the 'take' of threatened or endangered species resulting from otherwise lawful activities on non-Federal properties within the county and (2) allow the 'take' of threatened or endangered species that are currently unlisted but may become listed in the future" (CCDCP 2000). The intent and purpose of the MSHCP was to "establish a means to address the conservation needs of the entire range of biological resources within Clark County" in a cooperative implementation effort among, but not limited to, the USFWS, BLM, U.S. Forest Service, National Park Service (NPS), NDOW, and other Federal and State land managers and regulators (CCDCP 2000). The MSHCP does not provide for incidental take on Federal lands or resulting from Federal action on non-Federal lands but does provide a framework for avoidance and minimization of impacts to species from these actions.

The MSHCP approaches conservation needs of plant and wildlife species and their habitats on an ecosystem basis to provide a landscape-scale perspective. The *Clark County MSHCP* (CCDCP 2000) defines covered species as—

- Those for which sufficient information is available and adequate management prescriptions exist or can easily be defined and implemented to support an application for a Section 10(a) incidental take permit(s)
- Those species for which information is, if available, not sufficient, but are known to share habitat with other covered species
- Those species whose listing appears imminent unless conservation measures are instituted that which would likely ensure survival and recovery of such species in the wild.

High-priority-evaluation species are those "for which additional information is required or for which sufficient management prescriptions are unlikely to be able to be defined and implemented sufficiently to support an application for a 10 (a) Permit" (CCDCP 2000). A total of 20 covered and 7 high-priority-evaluation wildlife species (excluding invertebrates) are within these three ecosystems.

3.13.4 Sloan Canyon Potential Habitat Models

As part of this planning process, BLM developed potential habitat models for six Special Status Species either known to occur or with the potential to occur within the NCA. The species, chosen mostly because of their special status designation by BLM and NDOW, include the desert tortoise, Gila Monster, chuckwalla, desert bighorn sheep, phainopepla, and prairie falcon. Physical habitat characteristics (i.e., slope, vegetation) of each species were compared against existing GIS data to determine areas of potential habitat for each species.

Desert Tortoise

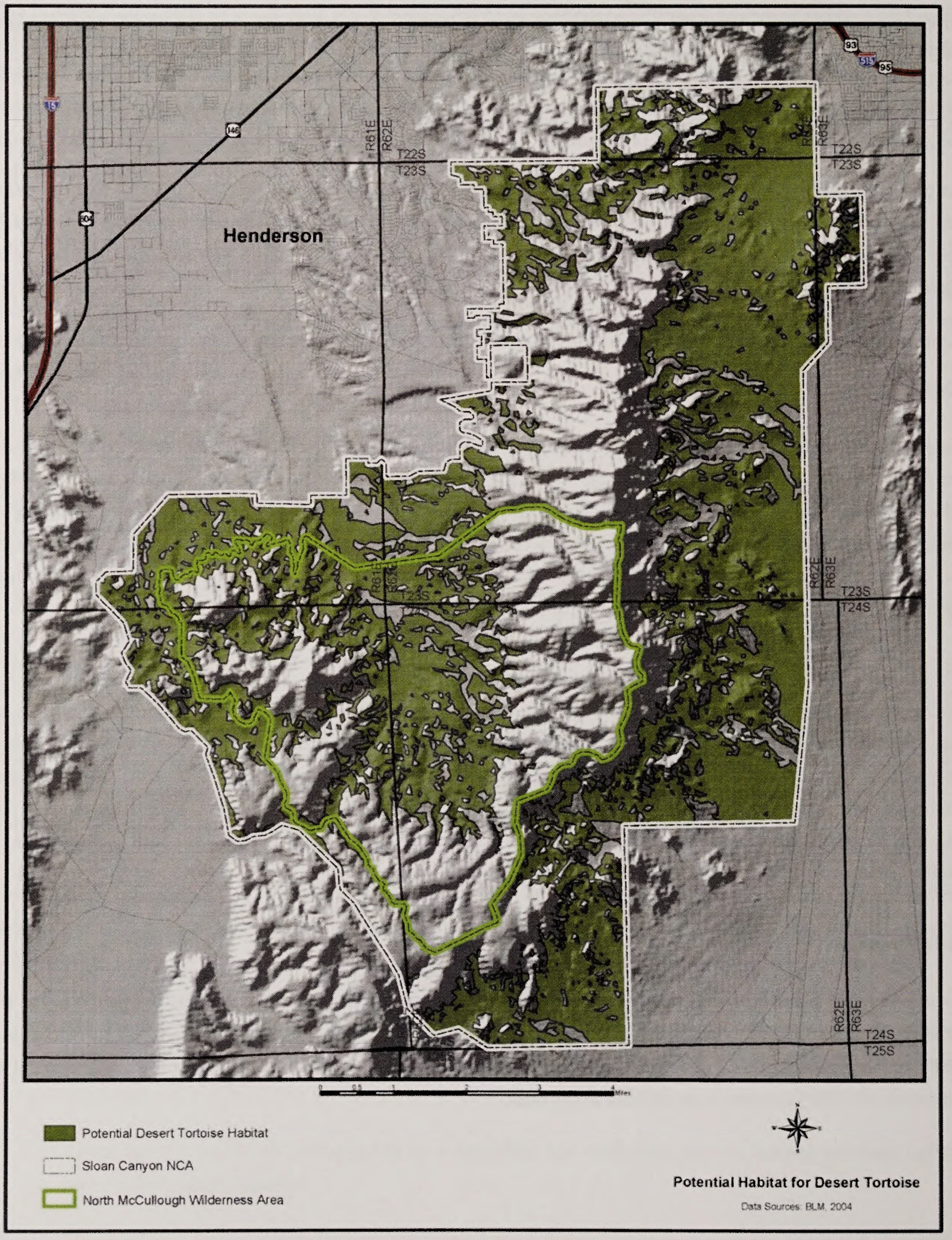
Declines in desert tortoise populations became a major concern in the 1970's because of direct take by humans; habitat loss, degradation, and fragmentation; predation; diseases; and droughts (USFWS 1994). The Mojave population of desert tortoise was listed as threatened in 1990 in the northern and western parts of its range, and six distinctive population segments were identified for critical habitat protection in 1994 following the guidelines set by the recovery plan released the same year. The population segments are representative of distinctive climatic, floristic, and geographic regions (USGS 1995).

The desert tortoise ranges from the Mojave and Sonoran deserts of southeastern California and southern Nevada south through Arizona into Mexico. Desert tortoises in Nevada typically live in flats, alluvial fans, bajadas, and rocky terrain. They construct extensive burrows up to 9 feet (3 m) in length that are often shared with other tortoises; therefore, areas containing friable soil are indicators of desert tortoise habitat. Plant species also play a major role in tortoise habitat. Creosote bush, burrobush, Mojave yucca, and blackbrush generally distinguish tortoise habitat at lower elevations, with Joshua tree and galleta grass at higher elevations (USGS 1997). Potential desert tortoise habitat within the NCA is presented in Figure 3.13.

Gila Monster

In the State of Nevada, the Gila Monster is a BLM sensitive and State-protected species. Reasons for the protected status include habitat loss due to urbanization and some agricultural uses, illegal collection, restricted range in Nevada, and limited knowledge and information. Currently, collection (commercial or personal) of Gila Monsters is prohibited in Nevada.

Figure 3.13. Potential Habitat for Desert Tortoise



The Gila Monster is primarily a desert species and is one of only two species of venomous lizards in the world. It occurs in extreme southwestern Utah, the southern tip of Nevada, southwestern New Mexico, Arizona, and Sonoran Desert. The northern subspecies is the Banded Gila Monster, and the southern subspecies is the Reticulated Gila Monster. Although range maps and published accounts indicate the presence of Gila Monsters in the Mojave Desert, little is known about the species in the Mojave Desert of Nevada (Gienger 2003).

A model of habitat suitability conducted by C.M. Gienger (2003) indicates that in southern Nevada a wide range of elevation and surface geological features describe habitat used by Gila Monsters. Gienger found Gila Monsters in Nevada occurring at a range of 400 to 1,200 meters. Refuge (shelter) site selection differs seasonally and seems to be influenced primarily by seasonal differences in thermal environments. Gila Monsters choose deeper shelter sites, as temperatures get hotter in the spring and summer, and shallow sites during early spring and fall when temperatures are cooler. Gila Monsters in Nevada spend roughly one-third of the year in hibernation with greatest surface activity in late spring (May-June). Home range sizes for Gila Monsters in Nevada are larger than those in Utah and Arizona. They travel almost twice as far per bout of activity. This may be because of decreased production in Nevada relative to the other States, which causes the need to forage over greater areas to acquire the same food sources. Relative to the NCA, Gienger (2003) found the North McCullough Range as medium-to-high suitability for Gila Monster habitat. Potential Gila Monster habitat within the NCA is presented in Figure 3.14.

Chuckwalla

The chuckwalla is a BLM sensitive species whose population may be at risk because of the high amount of collection for the commercial pet trade. Currently, only Nevada allows commercial collection of the chuckwalla for pet trade with most collection beginning in March and continuing until the end of September. Most of the animals collected for commercial pet trade are potentially breeding adults (Brodie et al. 2003).

Chuckwallas occur in southeastern California, southern Nevada, southwestern Utah, western Arizona, eastern Baja California, and northwestern Mexico. They are found in a variety of desert woodland and scrub habitats but are frequently associated with creosote communities. Strictly a rock dweller, the chuckwalla is found in areas with large rocks, boulder piles, or large rock outcrops on slopes of the Great Basin, Mojave, and Sonoran Deserts (California Department of Fish and Game [CDFG] 2004). The relative abundance of chuckwallas appears to be a function of the quality of the rocks that contain suitable crevices for retreat and rock piles that provide basking sites (Brodie et al. 2003). Potential chuckwalla habitat within the NCA is presented in Figure 3.15.

Chuckwallas are active primarily in March through August with greatest activity in the spring. The active season is over by mid-August, and hibernation occurs the rest of the year. Chuckwallas exhibit little or no detectable migration and tend to be long-lived lizards with high adult survivorship, low juvenile survivorship, and infrequent breeding. These traits make the species susceptible to slow recovery rates should a population crash occur (Brodie et al. 2003).

Figure 3.14. Potential Habitat for Gila Monster

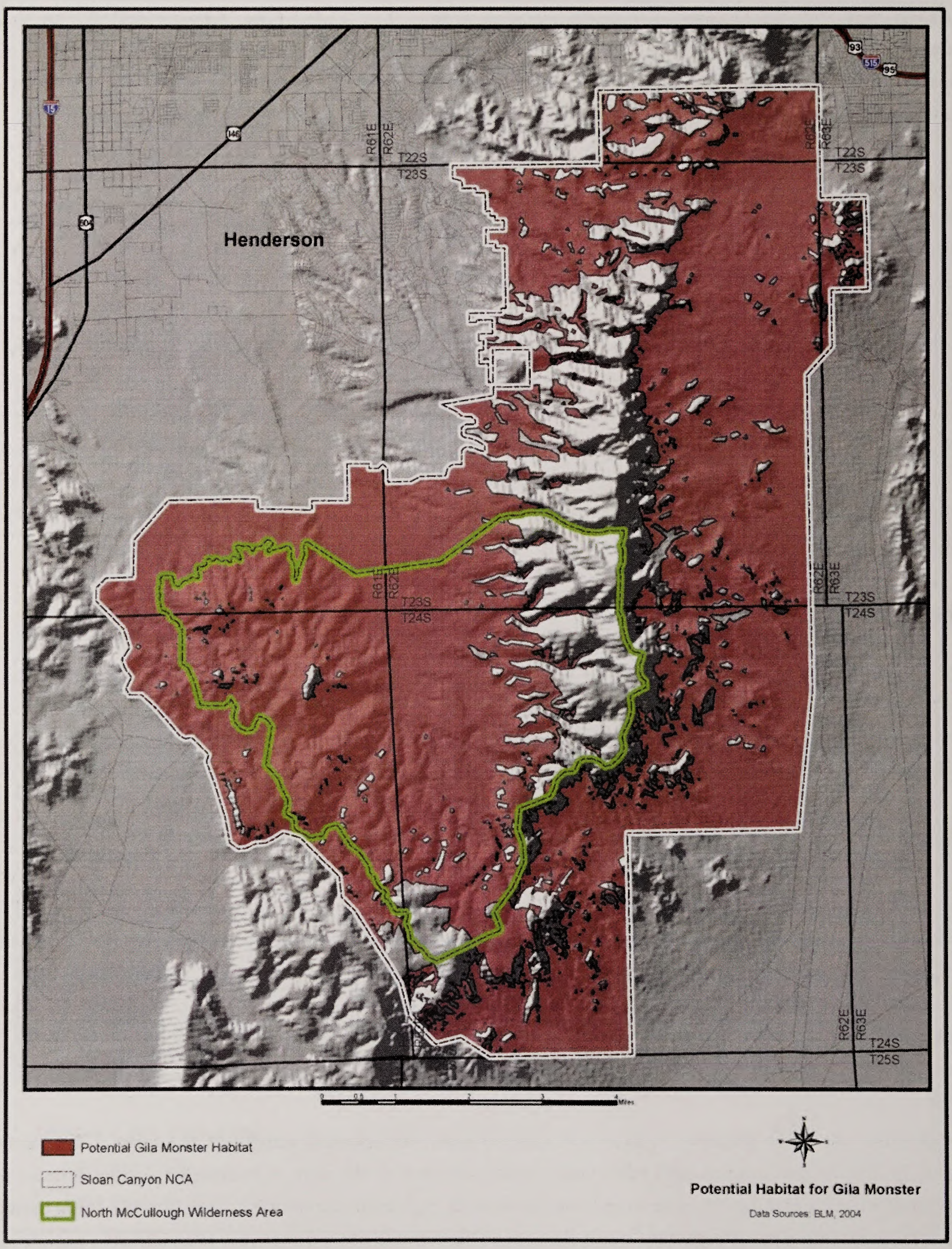
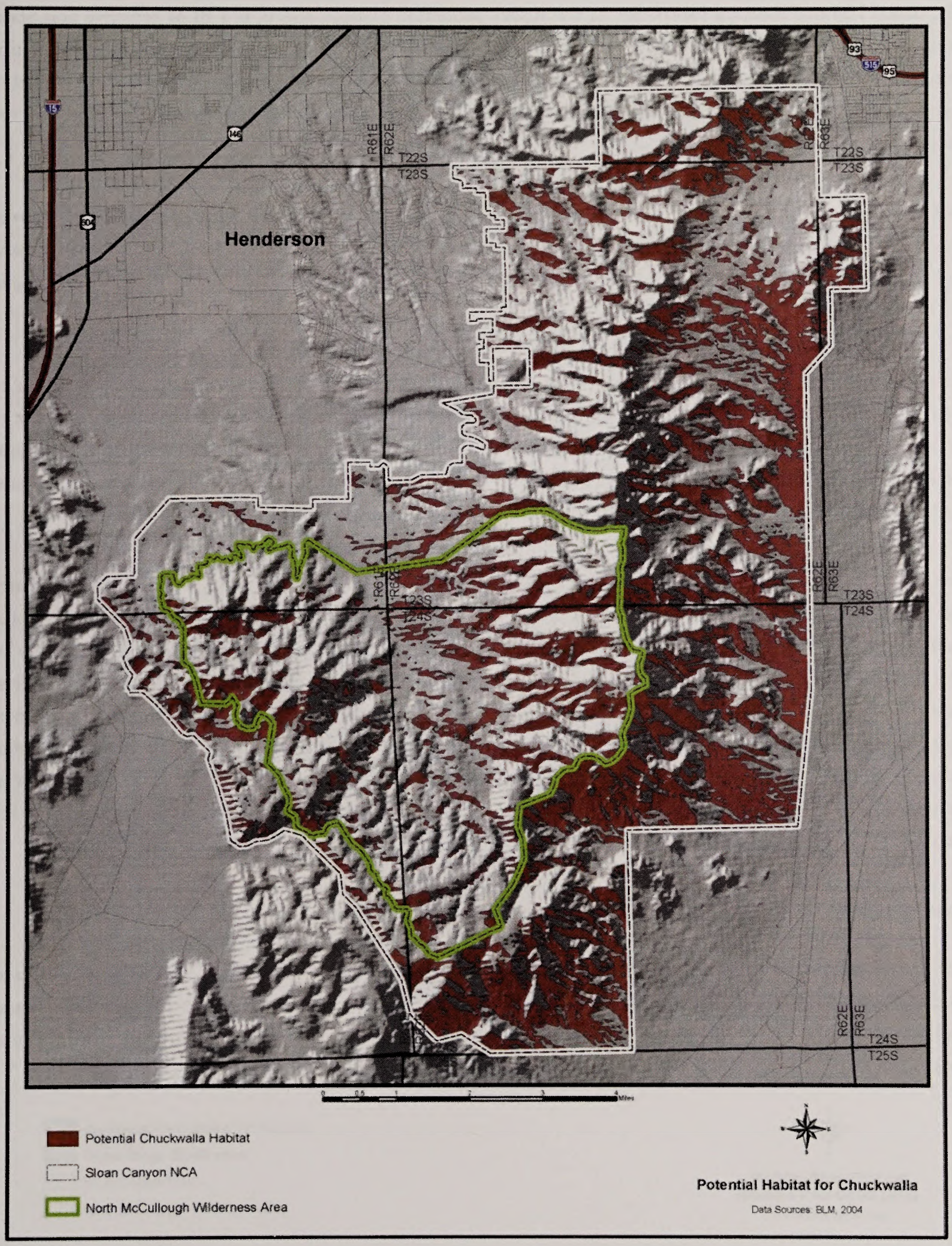


Figure 3.15. Potential Habitat for Chuckwalla



Desert Bighorn Sheep

The desert bighorn sheep, a subspecies of the Rocky Mountain bighorn sheep, is a BLM sensitive and State-protected species. Reasons for this status include exploitive hunting, disease, habitat destruction, competition from burros, and overgrazing by livestock. Over the past 12 years, desert bighorn numbers have stabilized or increased slightly as a result of reintroduction to former habitat, water developments, and favorable land use decisions (BLM 1998b).

Desert bighorn sheep are indigenous to the hot desert ecosystems of the Southwest. They range from Nevada and California to west Texas and south into Mexico. Desert bighorn historically occupied the central and southern portions of Nevada, and the State currently supports one of the largest modern populations in the United States (BLM 1998b).

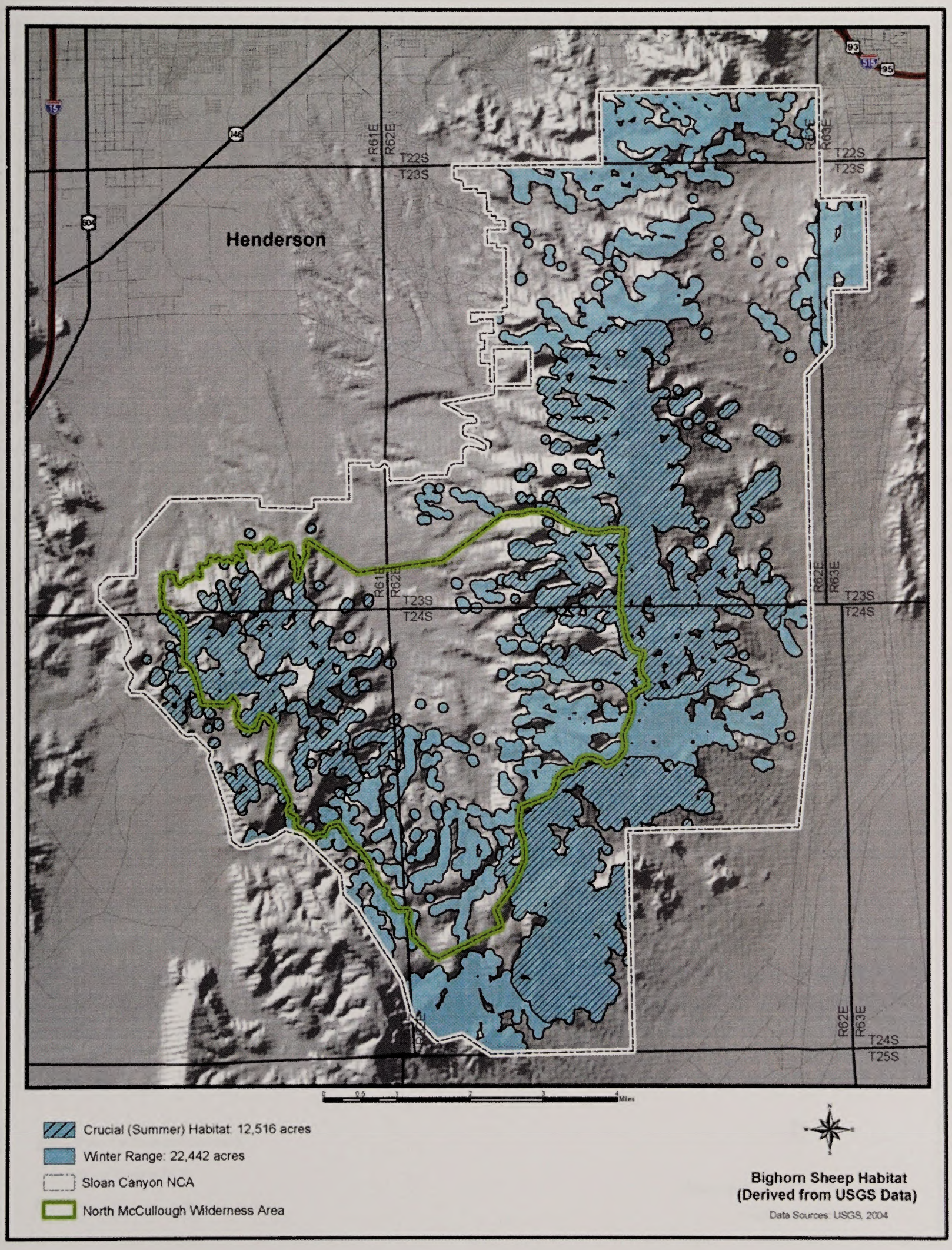
Desert bighorn prefer terrain that is rough, rocky and steep, broken up by canyons and washes and live in regions of the State marked by hot summers and little annual precipitation. Bighorn sheep require access to freestanding water during summer months, and in drought conditions they may water throughout the year (NDOW 2004). The breeding season or rut generally extends from July through September with the lambing season beginning in December and ending in June (Blue Planet Biomes 2002).

The *Rangewide Plan for Managing Habitat of Desert Bighorn Sheep on Public Lands* (BLM 1998b) provides guidance and sets forth priorities for a program to manage desert bighorn sheep habitat on BLM lands in Arizona, California, Colorado, Nevada, New Mexico, and Utah. The goal of the program is to facilitate recovery of desert bighorn in the Southwest through a balanced program of inventory, on-the-ground projects, monitoring, and research. The objectives of the Rangewide Plan are to facilitate the recovery of desert bighorn sheep in 115 identified habitat areas. The McCullough Mountain Range is one of the 115 habitat areas on BLM land with remnant herds that are capable of supporting viable populations. The crucial bighorn sheep summer habitat and winter range model was developed in conjunction with the U.S. Geological Survey and is presented in Figure 3.16.

Phainopepla

The phainopepla is a BLM sensitive, State-protected, and *Clark County MSHCP* (CCDCP 2000) covered species. The main threat to the phainopepla is habitat loss due to urban and some agricultural land development, fires, OHV damage, illegal cutting of mesquite for fuel wood, and construction of gravel pits. Population trends of the phainopepla are currently being researched in Nevada (NDOW 2004a).

Figure 3.16. Potential Bighorn Sheep Habitat



Phainopepla occur in the southwest United States (southern and central California, southern Nevada, Arizona, southern Utah, southern New Mexico, and western and southern Texas) south to Baja California and into Mexico. It is found in desert, shrubland, riparian, and woodland habitats and is generally associated with areas supporting desert trees bearing mistletoe. In Nevada, these trees typically are mesquite, catclaw acacia, and juniper (NDOW 2004a). The potential phainopepla habitat was modeled based on potential acacia habitat and is presented in Figure 3.17.

Prairie Falcon

The prairie falcon is a BLM sensitive and State-protected species. The main threat to the prairie falcon is human disturbance of nesting sites.

The prairie falcon is an uncommon permanent resident and migrant that ranges from southeastern deserts northwest along the inner Coast Ranges and Sierra Nevada. It is distributed from annual grasslands to alpine meadows but associated primarily with perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub areas. Prairie falcons use open terrain for foraging and nest in open terrain with canyons, cliffs, escarpments, and rock outcrops that overlook open areas for hunting. Because specific falcon data are not available, potential nesting and fledging habit was modeled based on general raptor habitat characteristics (Figure 3.18).

Figure 3.17. Potential Habitat for Phainopepla

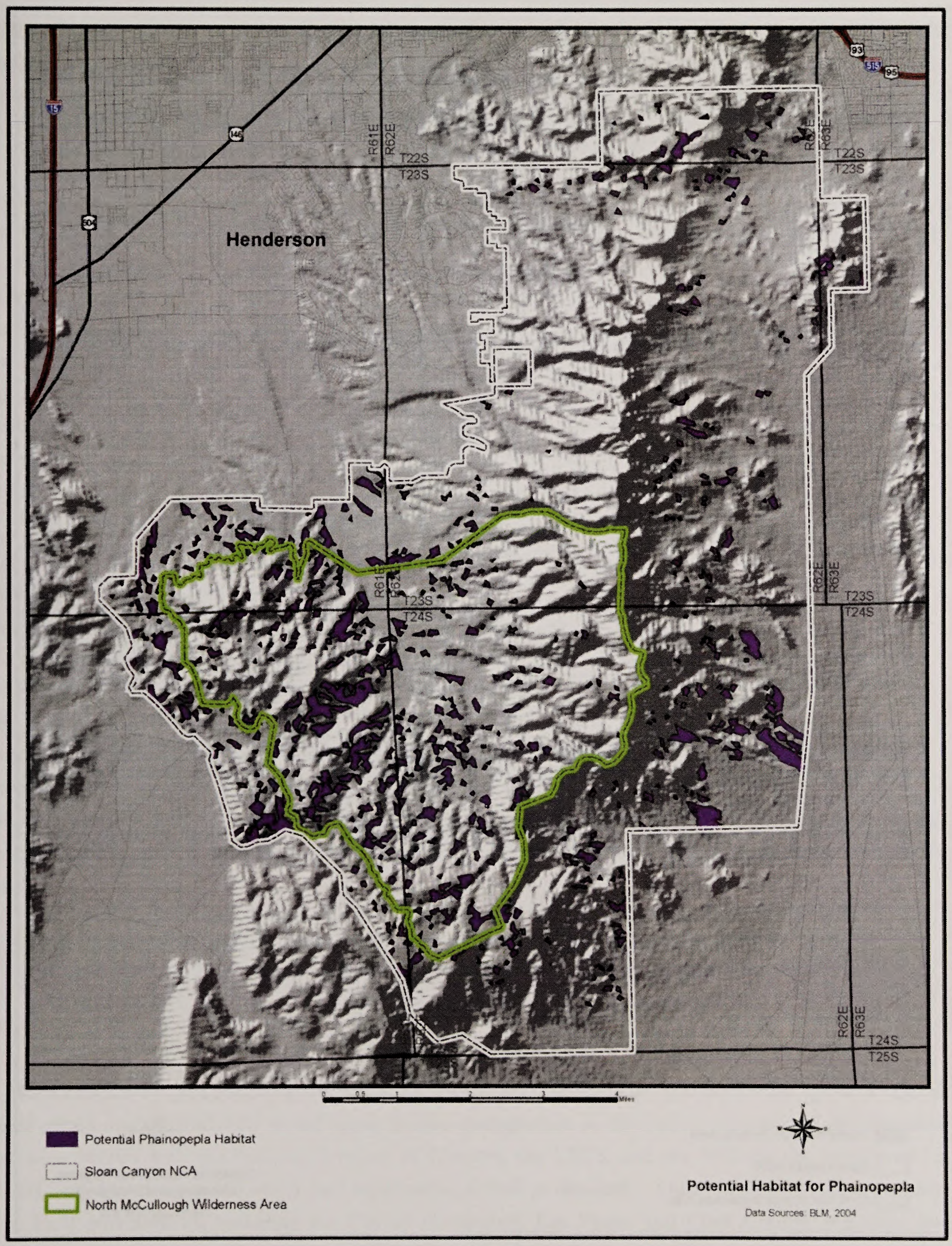
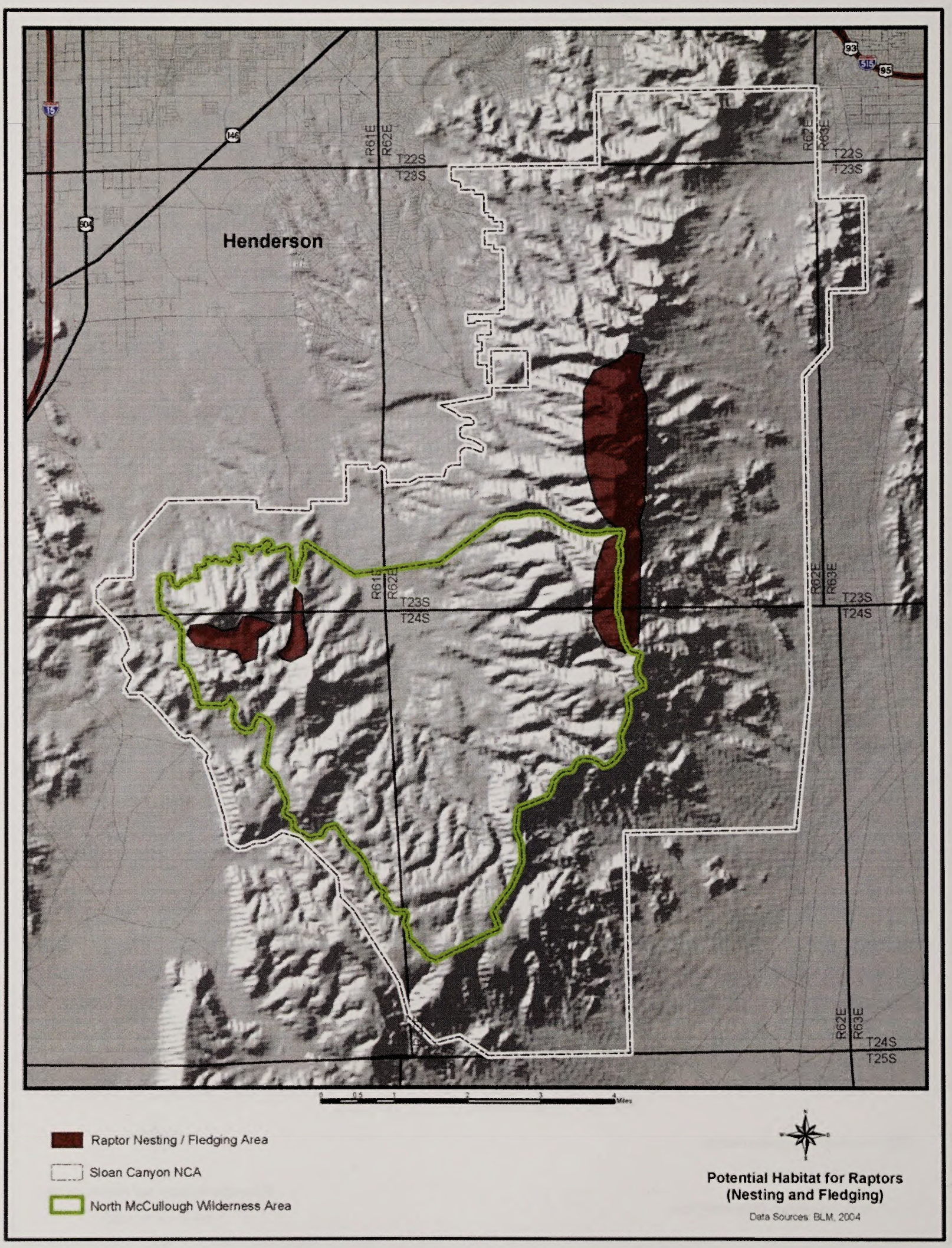


Figure 3.18. Potential Habitat for Raptors (Nesting and Fledging)



3.14 WILDLAND FIRE MANAGEMENT

Wildfire is of minimal concern in the Sloan Canyon NCA, as the historical fire record for the area shows almost no fire occurrence. Natural lightning ignitions are unlikely to occur in the NCA because of the sparseness and short stature of the vegetation, particularly on the rocky slopes and the ridgetops. There is potential for human-caused ignitions, but it pertains primarily to the more accessible valley bottoms.

Even if ignited, the distribution and density of vegetation within the NCA would not allow fire to carry and spread. One scenario, in which a hot, dry fire season following successive years of above-normal precipitation, could pose a possible exception. The wet conditions would contribute to an atypical build-up of grass and shrub fuels, while the subsequent hot and dry conditions would increase the risk of ignitions. In realistic terms, only the valley bottoms and bajadas of Hidden Valley are prone to such a vegetative build-up. Swales of native galleta grass co-dominate these areas along with creosote bush and white bursage. Under optimal conditions, a wildfire of several hundred acres could potentially occur; however, the fire would not pose a threat to either the NCA environment or to human life and property values. The steep, bare rocky slopes on the NCA boundary would prevent fire from spreading upslope into the NCA proper, and this remote location does not contain any facilities, infrastructure, or developments.

The BLM Las Vegas Field Office Fire Management Plan (BLM 2004h) and the *Las Vegas RMP* (BLM 1998a) provide current management direction for fire. The main objective in the *Las Vegas RMP* is to provide fire suppression efforts commensurate with resources and adjacent property values at risk. Further direction from the RMP divides the planning area into fire suppression zones. All of the Sloan Canyon NCA falls within Zone 2B. This zone is characterized by critical desert tortoise and bighorn sheep habitat, little rainfall, and a higher percentage of ephemeral/perennial plant communities as compared with other zones. The objective for managing this Fire Management Unit is to allow degraded vegetative communities to ecologically improve over time through the use of moderate suppression tactics. The maximum acceptable burn acre per incident is 1 acre with maximum acceptable burn acreage per year of 50 acres. Constraints in the plan include minimizing off-road travel, road surface disturbance, permitting use of foam and retardant, and the existence of wildland urban interface areas.

Fire fuels management has not been practiced in the Sloan Canyon vicinity because of the lack of fire threat posed by the local vegetative characteristics. There is no anticipation of any future desire or need for fire fuels management actions to be taken in the Sloan Canyon NCA vicinity.

A Memorandum of Understanding (MOU) is either in place or being developed with other agencies regarding initial attack suppression that would apply to fire management in the NCA. Completed MOUs include statewide MOUs with the Nevada Division of Forestry, the USFS, and the NPS (in the vicinity of Lake Mead), and they cover initial attack and suppression as well as dispatch. Other MOUs are being developed with local governments, including the City of Henderson, Las Vegas, and Clark County, regarding initial attack in the vicinity of the Sloan Canyon NCA.

3.15 WATER RESOURCES AND QUALITY

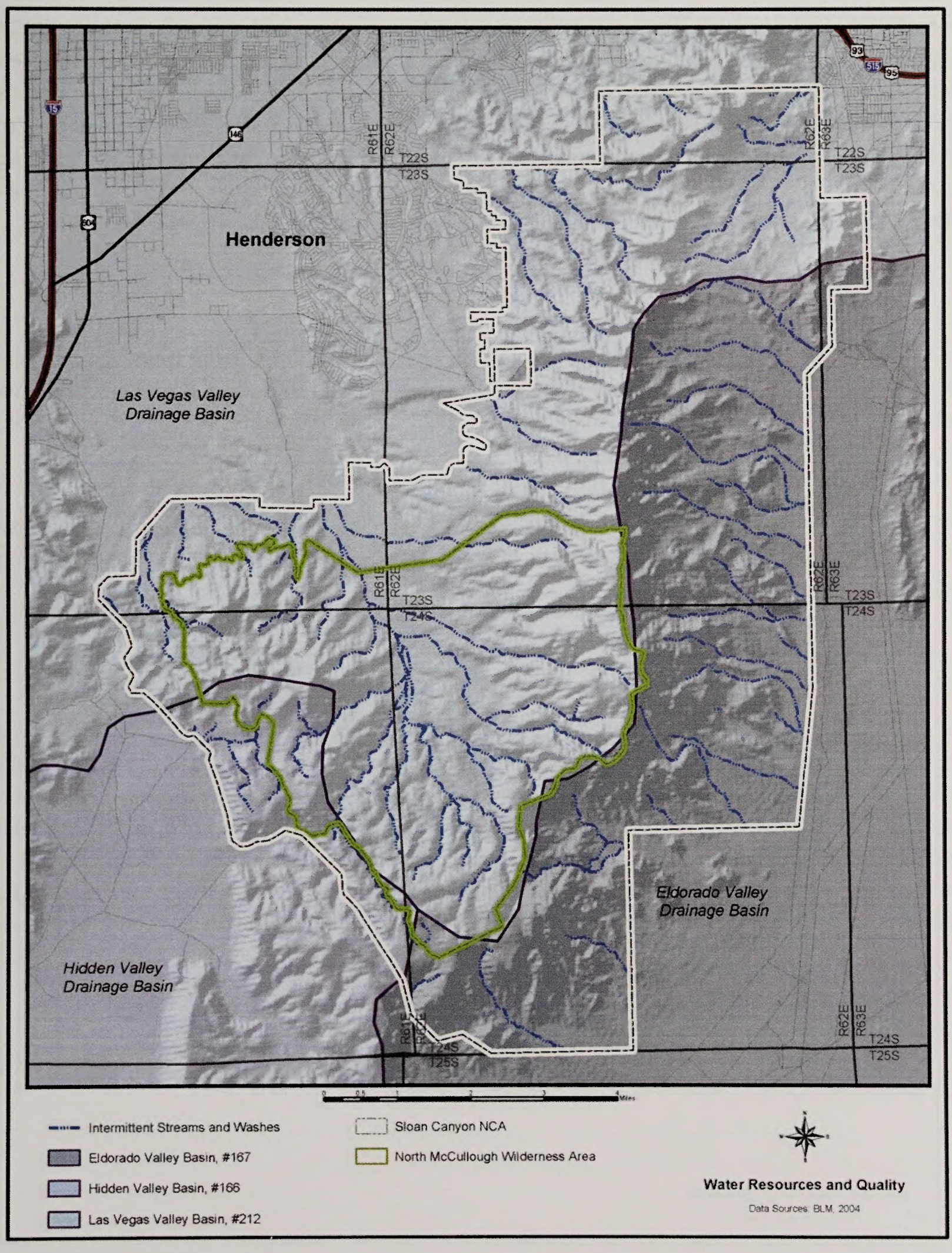
The NCA straddles the hydrographic boundary between the Colorado River Basin and the Central Region Basin. The canyons, fans, and washes of the northwestern and central portion of the NCA drain into Las Vegas Valley, a tributary of the Colorado River system. The steep eastern canyons and fans direct runoff into the closed basin of Eldorado Valley, which is separated from the Colorado River system by one low mountain range. Ephemeral stream flows in the southwestern portion of the NCA enter Hidden Valley, also a closed basin (Figure 3.19).

The drainages of the McCullough Range are typically simple dendritic systems originating on the upper slopes of the range. On the uplifted eastern side of the NCA, the drainages form narrow, steep-gradient canyons that travel short distances before contributing to the broad fans of the Eldorado Valley. The drainages cut through less-resistant rocks, typically volcanoclastic ashflows, breccias, and weak tuffs, but often run relatively level across resistant surfaces of lava flows or welded tuffs. When drainages encounter resistant surfaces, the canyon floors tend to be level or stepped, and small water catchments, or tinajas, may form. The relatively low-gradient drainages of the western mountain front have cut broad, deep canyons into the unconsolidated sedimentary rocks. Surface flows eventually coalesce into broad washes that drain into Las Vegas or Hidden Valley. Tinajas are relatively rare in the western portion of the NCA; however, they are present where a steep canyon exposes a resistant surface, such as Sloan Canyon proper.

The watersheds within the NCA have experienced little development or human modification, although remnants of several very small dams exist. A few of the NCA drainages have been altered by culverts along dirt roadways, and detention basins both inside and outside of the NCA boundary provide temporary storage capacity for peak flow from storm events and control the release of flows to protect downstream structures from flooding.

No perennial streams exist within the NCA, but high-intensity thunderstorms can produce rapid runoff and flash flooding, which can result in floodwater and sediment damage. Sloan Canyon hosts an ephemeral stream where water is found in the channel only during, and immediately after, rainstorms. Buried step pools, currently filled with sand and gravel, serve as an important water resource for the Sloan Canyon ecosystem. Numerous high water marks indicate the susceptibility of Sloan Canyon to relatively frequent flood events. Organic and inorganic debris is present along the entire length of the channel, and high water marks in the narrows are 6 feet above the channel bottom.

Figure 3.19. Water Resources



3.15.1 Groundwater Resources

Because of the steep bedrock terrain, essentially no groundwater sources exist in the Sloan Canyon NCA; however, the range does provide a relatively small amount of recharge to alluvial aquifers in adjacent valleys. Precipitation reaches groundwater reservoirs by infiltrating into streambed channels and alluvial aprons or by infiltrating directly into consolidated rock and percolating vertically and laterally to valley aquifer fill. Very small perched or contact springs occur in the eastern portion of the NCA. The source water for these springs is local rainwater infiltration that has been concentrated where downward migration is inhibited. These springs are not connected with surrounding groundwater basins or regional groundwater flow systems.

3.15.2 Water Quality

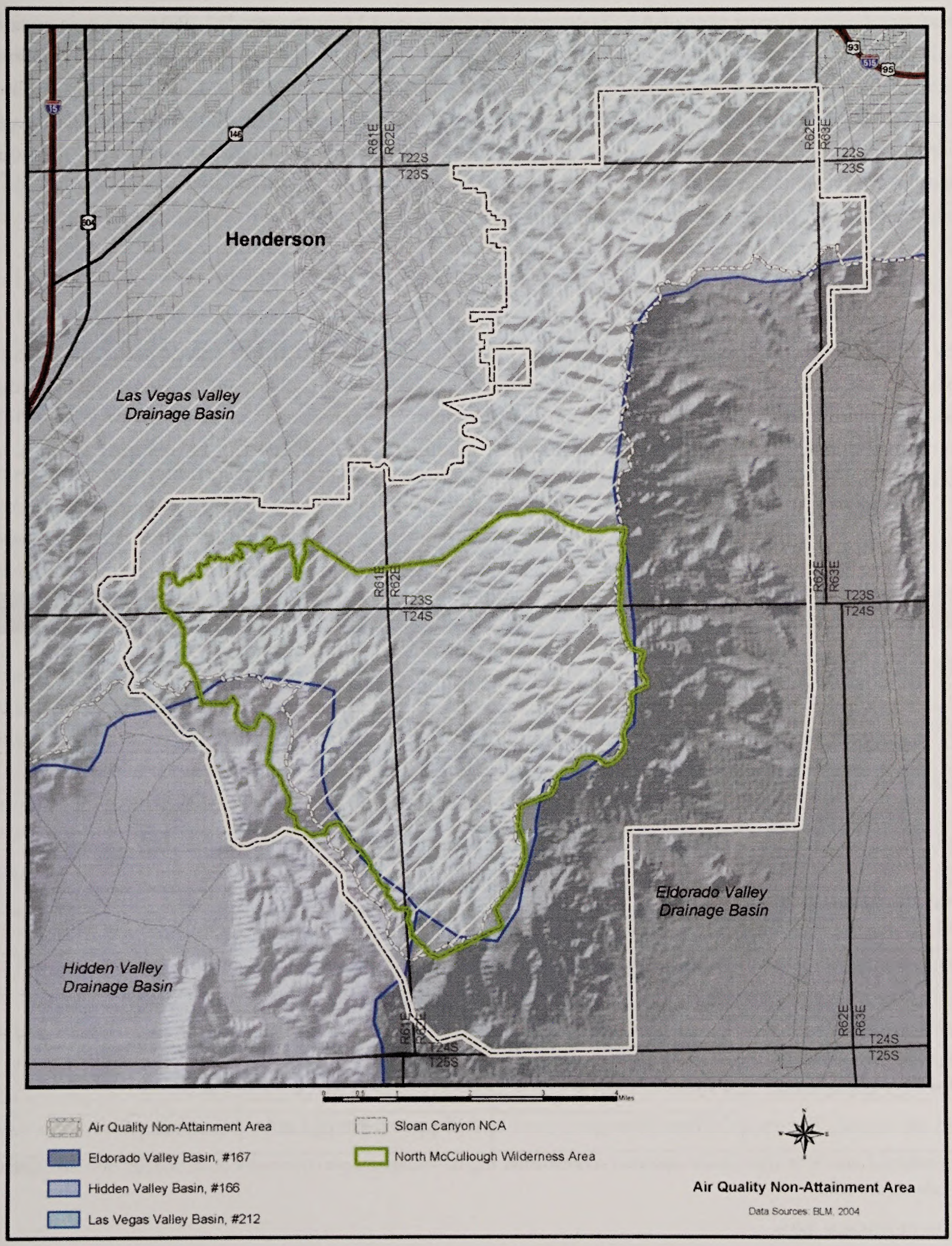
Because of its rugged terrain, limited water, and long-term Wilderness Study Area status, the NCA has experienced almost no grazing, OHV use, or mineral activities. Therefore, erosion has been low, vegetation cover is good, and there has been essentially no direct contamination to either surface or groundwater resources (BLM 1998a).

Groundwater within the NCA can be high in total dissolved solids and other naturally occurring compounds resulting from the dissolution of rock-forming minerals. High concentrations of bacteria could occur naturally in small ephemeral springs and seeps.

3.16 Air Quality

The NCA is located in three airsheds: Las Vegas Valley (Hydrographic Basin 212), Hidden Valley (Hydrographic Basin 166), and Eldorado Valley (Hydrographic Basin 167) (Figure 3.20). In 1993, the Las Vegas Valley was designated as serious nonattainment for particulate matter with a mean aerodynamic diameter of 10 μm or less (PM_{10}). In 1997 it was designated as serious nonattainment for carbon monoxide (CO) and in 2004 designated as "basic" nonattainment for the newly implemented 8-hour ozone (O_3) standard promulgated by the Environmental Protection Agency (EPA). The Hidden Valley airshed is a Prevention of Significant Deterioration air quality area and the Eldorado Valley airshed is a Management Area.

Figure 3.20. Air Quality Non-Attainment Area



3.16.1 Ambient Air Quality

The Clark County Department of Air Quality and Environmental Management (DAQEM) operates a state-of-the-art system of near-real-time air quality instruments to constantly measure the ambient concentrations of criteria pollutants of particulate matter less than ten (10) microns in diameter (PM_{10}); and ($PM_{2.5}$), carbon monoxide (CO), ozone (O_3), nitrogen oxides (NO and NO_2), sulfur dioxide (SO_2), chlorine (CL_2), and hydrogen sulfide (H_2S) are monitored as special projects. Currently, there are 20 monitoring locations spatially distributed throughout Hydrographic Basin 212 as well as outlying site locations based upon emission source distribution and population exposure.

3.16.2 Ambient Air Quality Concentrations

The EPA established the National Ambient Air Quality Standards (NAAQS) for criteria pollutants. These pollutants are those compounds that cause or contribute to air pollution that could endanger public health and the environment. The NAAQS for criteria pollutants are presented in Table 3.7. Ambient air concentration refers to the mass of pollutants present in volume of air and can be reported in units of micrograms per cubic meter ($\mu g/m^3$) or parts per million (ppm).

Table 3.7. National Ambient Air Quality Standards

Pollutant	Standard	Standard Value*	Standard Type
Carbon Monoxide (CO)	8-Hour Average	9 ppm (10 mg/m^3)	Primary
	1-Hour Average	35 ppm (40 mg/m^3)	Primary
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.053 ppm (100 $\mu g/ m^3$)	Primary & Secondary
Ozone (O_3)	1-Hour Average	0.12 ppm (235 $\mu g/ m^3$)	Primary & Secondary
	8-Hour Average	0.08 ppm (157 $\mu g/ m^3$)	Primary & Secondary
Lead (Pb)	Quarterly Average	1.5 $\mu g/ m^3$	Primary & Secondary
Particulate Matter (PM_{10})	Annual Arithmetic Mean	50 $\mu g/ m^3$	Primary & Secondary
	24-Hour Average	150 $\mu g/ m^3$	Primary & Secondary
Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	15 $\mu g/ m^3$	Primary & Secondary
	24-Hour Average	65 $\mu g/ m^3$	Primary & Secondary
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	0.03 ppm (80 $\mu g/ m^3$)	Primary
	24-Hour Average	0.14 ppm (365 $\mu g/ m^3$)	Primary
	3-Hour Average	0.50 ppm (1300 $\mu g/ m^3$)	Secondary

* Parenthetical value is an approximate equivalent concentration. mg/m^3=milligrams per cubic meter of air, and $\mu g/ m^3$= micrograms per cubic meter of air.

Source: CCDAQEM 2003b.

3.16.3 Criteria Pollutants Designated as Nonattainment

This section provides a description of the criteria pollutants that contribute to the Las Vegas Valley airshed's nonattainment designation: particulate matter (PM_{10}), carbon monoxide (CO), and ozone (O_3) (BLM 2004f).

Carbon Monoxide

Carbon monoxide (CO) is formed by the incomplete combustion of fossil fuels and other carbon- containing materials. Although the Las Vegas Valley airshed is classified serious nonattainment for CO, there have been no violations of the NAAQS since 1999 (CCDAQEM 2003b). Long-term trends show improving air quality in Las Vegas with respect to CO since the 1980's when violations of the standard occurred between 18 and 41 times per year. A State Implementation Plan (SIP) was prepared by the CCDAQEM and approved by the EPA to achieve CO compliance.

Particulate Matter

Particulate material in the atmosphere is produced from a variety of sources. Naturally occurring soil material may be mobilized and transported by surface winds, especially when disturbed by surface activities. The largest sources of particulate matter are from construction activities, vacant lands, and paved and unpaved roads. Vehicles, particularly diesel-powered vehicles, are the major sources of combustion particles within the Las Vegas Valley.

The Las Vegas airshed was designated as serious nonattainment for PM_{10}. In the last 5years (1999-2003) measurements of particulates have been recorded at more than one location, indicating violations of the 24-hour PM_{10} standard as set forth by the NAAQS (CCDAQEM 2003b). A SIP was prepared for PM_{10} by the CCDAQEM and approved by the EPA to achieve compliance. The PM_{10} nonattainment area for Las Vegas is shown in Figure 3.20 and includes a portion of the Sloan Canyon NCA.

Ozone

Ozone (O_3) is produced through a series of chemical reactions of nitrogen oxides with volatile organic oxides in sunlight. Ozone is more prevalent from May to October when sunlight, high temperatures, and stagnant air conditions trigger its formation. Available data on O_3 measurements indicate that air quality in the Las Vegas Valley is not in compliance with the revised 8-hour NAAQS for O_3. The EPA designated Clark County as nonattainment for O_3 on April 15, 2004, but granted a request from the State of Nevada to defer the designation date to mid-September 2004 to allow additional analysis of the nonattainment boundary. The plan is to develop and implement a SIP, prepared by the DAQEM, on how the County will achieve the new 8-hour standard by June 2009.

3.16.4 Air Quality Modeling

In early 2004, Argonne National Laboratory prepared a comprehensive air quality modeling study and supporting field measurements to assess current and future cumulative air quality impacts in the Las Vegas metropolitan urban valley. The modeling effort was completed in support of BLM's ongoing Land Disposition Actions within the BLM disposal boundary. The study utilized a third-generation, state-of-the-art Eulerian dispersion model (Community Multiscale Air Quality Models-3), along with a fifth-generation prognostic mesoscale meterological (MM5) model to simulate the influences of atmospheric physics and chemistry on pollutant transport and diffusion (BLM 2004f).

3.17 GRAZING

The Hidden Valley Allotment is the only allotment open to livestock grazing in the Sloan Canyon NCA. Most of the Hidden Valley Allotment is outside the NCA and therefore is not affected by this plan's decisions; however, a portion of the allotment extends north into the NCA and the North McCullough Wilderness Area (Figure 3.21).

Grazing on the Hidden Valley Allotment is ephemeral, which means that authorization to graze is dependent on climatic conditions and grass production. The permittee may graze the allotment if the BLM Authorized Officer determines forage conditions are suitable for livestock grazing. The permittee does not forfeit the ability to apply if no permit application is made or allotted forage is not used.

Domestic livestock use is limited to cattle in this allotment. Table 3.8 shows the number of cattle that have been authorized to graze on the Hidden Valley Allotment for the past 13 years.

Figure 3.21. Hidden Valley Allotment

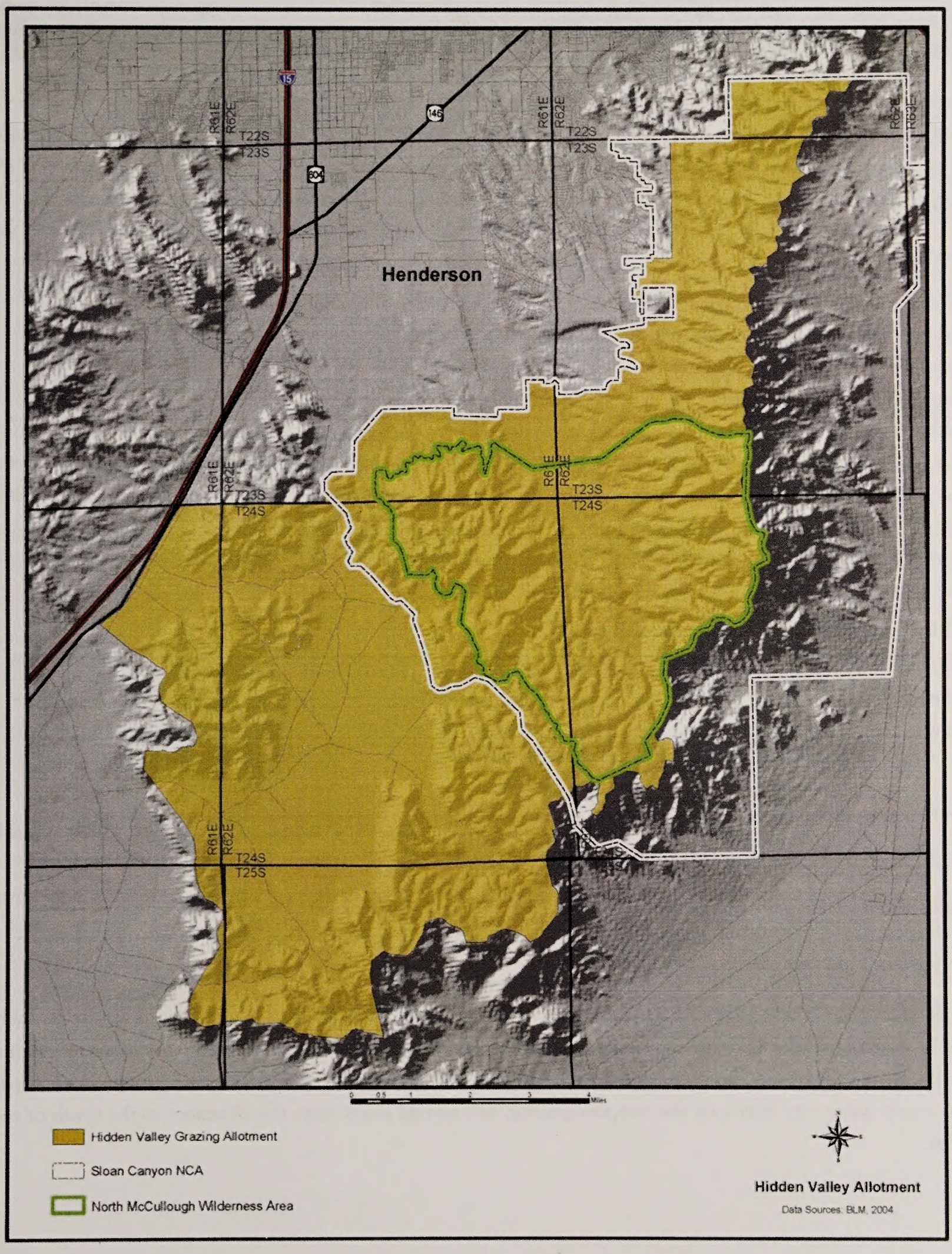


Table 3.8. Livestock Grazing on the Hidden Valley Allotment 1990–2002

Licensed Animal Unit Moth	Number of Cattle Authorized to Graze	Season Authorized to Graze
177	55	03/01/1990 to 03/19/1990
	65	03/20/1990 to 05/25/1990
51	50	10/31/1990 to 11/30/1990
157	53	12/01/1990 to 02/28/1991
188	62	03/01/1991 to 05/31/1991
24	45	11/15/1992 to 11/30/1992
254	86	12/01/1992 to 02/28/1993
66	100	11/11/1993 to 11/30/1993
296	100	12/01/1993 to 02/28/1994
89	90	10/26/1994 to 11/30/1994
121	90	12/01/1994 to 01/10/1995
53	90	02/11/1995 to 02/28/1995
An application to graze 90 cattle was denied because it was not consistent with the Terms and Conditions of the Biological Opinion to Protect the Desert Tortoise.		03/01/1995 to 04/30/1995
99	100	11/01/1995 to 11/30/1995
284	96	12/01/1995 to 02/28/1996
An application for nonuse of the allotment based on drought conditions was submitted.		1997
41	40	12/01/1999 to 12/31/1999
No applications to graze livestock in the Hidden Valley grazing allotment were received.		2000–2002

Source: BLM 2004i.

Grazing on the Hidden Valley Allotment is supported by hauled water. Water haul locations are strategically placed to avoid wildlife habitat and target grazing use. Although no current water haul locations are within the NCA, at least one is directly adjacent to the NCA boundary in an area of good grass production. Roads that access water haul locations also support grazing, and several roads serve the allotment to the south of the NCA.

3.18 GEOLOGY AND SOILS

3.18.1 Geology

The McCullough Range lies in the southern Basin and Range Province and trends north–south from the New York Mountains in California to the City of Henderson in the Las Vegas Valley. The northern part of the range, where the Sloan Canyon NCA is located, consists of a Precambrian basement overlain by a Tertiary volcanic section. Excellent exposure of this volcanic section is provided in the range's steep eastern escarpment, which ranges from 2,000 to 3,000 feet high (Bridwell 1991).

The North McCullough Range is unique in that the geology in all other ranges in the southern Nevada region has been highly distorted by extensional faulting associated with the formation of the Basin and Range. There is essentially no faulting within the NCA, so the geologic block is relatively coherent, and the area provides a "textbook" for volcanology (Smith personal communication 2004). Although detailed geologic mapping has not occurred within most of the NCA, at least four major volcanic events have been documented: the Henderson Caldera, located near the Anthem development; a 14-million-year-old stratovolcano that forms the ridgeline of the McCullough Range; an explosive caldera event south of NCA in the McCullough Pass area; and in the Hidden Valley area, four volcanoes define a geologic "sag" (Smith personal communication 2004). Volcanic features within the NCA include cinder cones, lava fountaining, and domes of viscous lava.

Despite limited faulting, many of the rock units in the NCA are highly fractured, which strongly influences slope stability, as evidenced by recent rock fall and small-scale landslide events in the Sloan Canyon Petroglyph Site (BLM 2000). Alluvial slopes are near the angle of repose, making maneuvering on them difficult and downslope movement likely, posing risk to both visitors and cultural resources (BLM 2000).

3.18.2 Soils

A combination of published soil surveys of the Las Vegas Valley and unpublished reconnaissance mapping by the National Resource Conservation Service (NRCS) provide a general picture of the types of soils within the NCA (NRCS 1985). The soil types found within the NCA are listed in Table 3.9 and presented in Figure 3.22, Soil Types in Sloan Canyon NCA.

Figure 3.22. NRCS Soil Types Sloan Canyon NCA

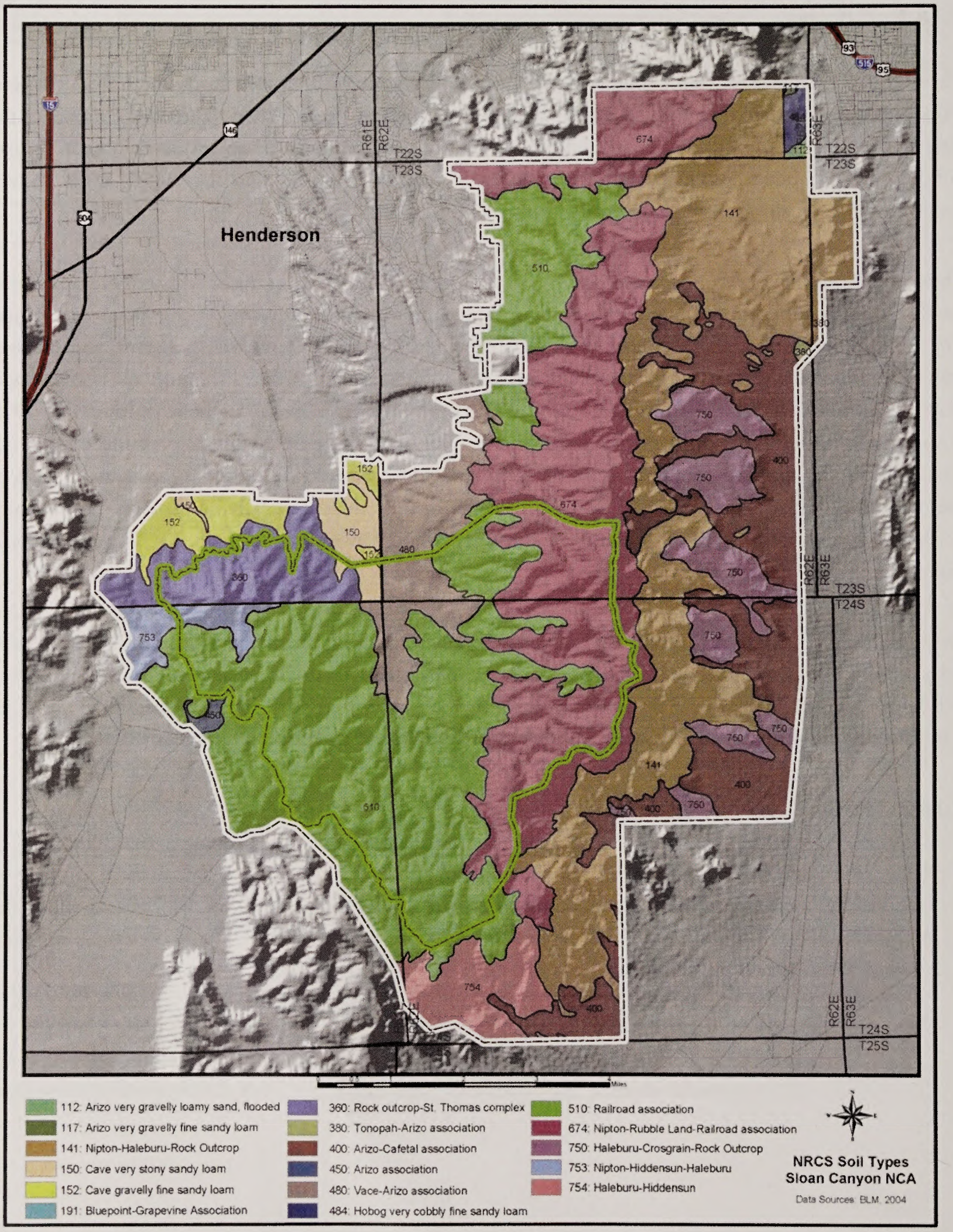


Table 3.9. Soil Types Within Sloan Canyon NCA

Soil Number	Soil/Association Name	Ecological Site Description
112	Arizo very gravelly loamy sand	Deep, excessively drained soils in channels on fan piedmonts; permeability rapid; runoff slow; water erosion hazard slight.
117	Arizo very gravelly fine sandy loam	Very deep, excessively drained soil on alluvial fans and inset fans; permeability very rapid; runoff slow; water erosion hazard slight.
141	Nipton-Haleburu-Rock Outcrop Association	Well-drained soil on backslopes of mountains; permeability moderately rapid; runoff very high.
150	Cave Very Stony Sandy Loam	Shallow, well-drained soil on erosional fan remnants; permeability moderate; runoff slow; water erosion hazard slight.
152	Cave Gravelly Fine Sandy Loam	Shallow, well-drained soil on erosional fan remnants; permeability moderate; runoff slow; water erosion hazard slight.
191	Bluepoint-Grapevine Association	Somewhat excessively drained soil on fan piedmonts; permeability moderately rapid; runoff very low.
360	Rock Outcrop - St. Thomas Complex	Shallow, well-drained soil on hills and low mountains; permeability moderately rapid; runoff rapid; water erosion hazard moderate.
380	Tonopah-Arizo Association	Excessively drained soil in intermontane basins; permeability moderately rapid; runoff low.
400	Arizo-Cafetal Association	Excessively drained soil on fan piedmonts; permeability rapid; runoff very low.
450	Arizo Association	Excessively drained soil on fan piedmonts; permeability rapid; runoff very low.
480	Vace-Arizo Association	Well-drained soil on fan piedmonts; permeability moderate; runoff very high.
484	Hobog Very Cobbly Fine Sandy Loam	Shallow, well-drained soil on hills; permeability moderately rapid; runoff rapid; water erosion hazard moderate.
510	Railroad Association	Well-drained soil on lava flows; permeability moderately rapid; runoff high.
674	Nipton-Rubble Land-Railroad	Well-drained soil on backslopes of mountains; permeability

Soil Number	Soil/Association Name	Ecological Site Description
	Association	moderately rapid; runoff very high.
750	Haleburu-Crosgrain Rock Outcrop Association	Well-drained soil on backslopes of mountains; permeability moderately rapid; runoff very high.
753	Nipton-Hiddensun-Haleburu Association	Well-drained soil on backslopes of mountains; permeability moderately rapid; runoff very high.
754	Haleburu-Hiddensun Association	Well-drained soil on summits of mountains; permeability moderately rapid; runoff very high.

Sources: Edmunds personal communication 2003; NRCS 1985.

Soils in the region largely derive from the eroded volcanic rocks that form the McCullough Range. Higher elevations typically consist of rock outcrops, but the clastic nature of the rock units provides high amounts of sand-sized sediment and contributes to the extensive fan system abutting the range. Older fan surfaces, generally higher in elevation and isolated from incised washes, often show intense carbonatecementation underlying a shallow pavement of basalt and rhyolite boulders. Pavements may form on younger fan surfaces in the central basin and on the east side of the NCA, but their formation is inhibited on the older fans due to surface cementation. Downslope, the mid-range alluvial fans contain deeper soils consisting of gravelly sandy loam. At lower elevations and on basin floors, very deep, fine silts, sands, and loams are deposited.

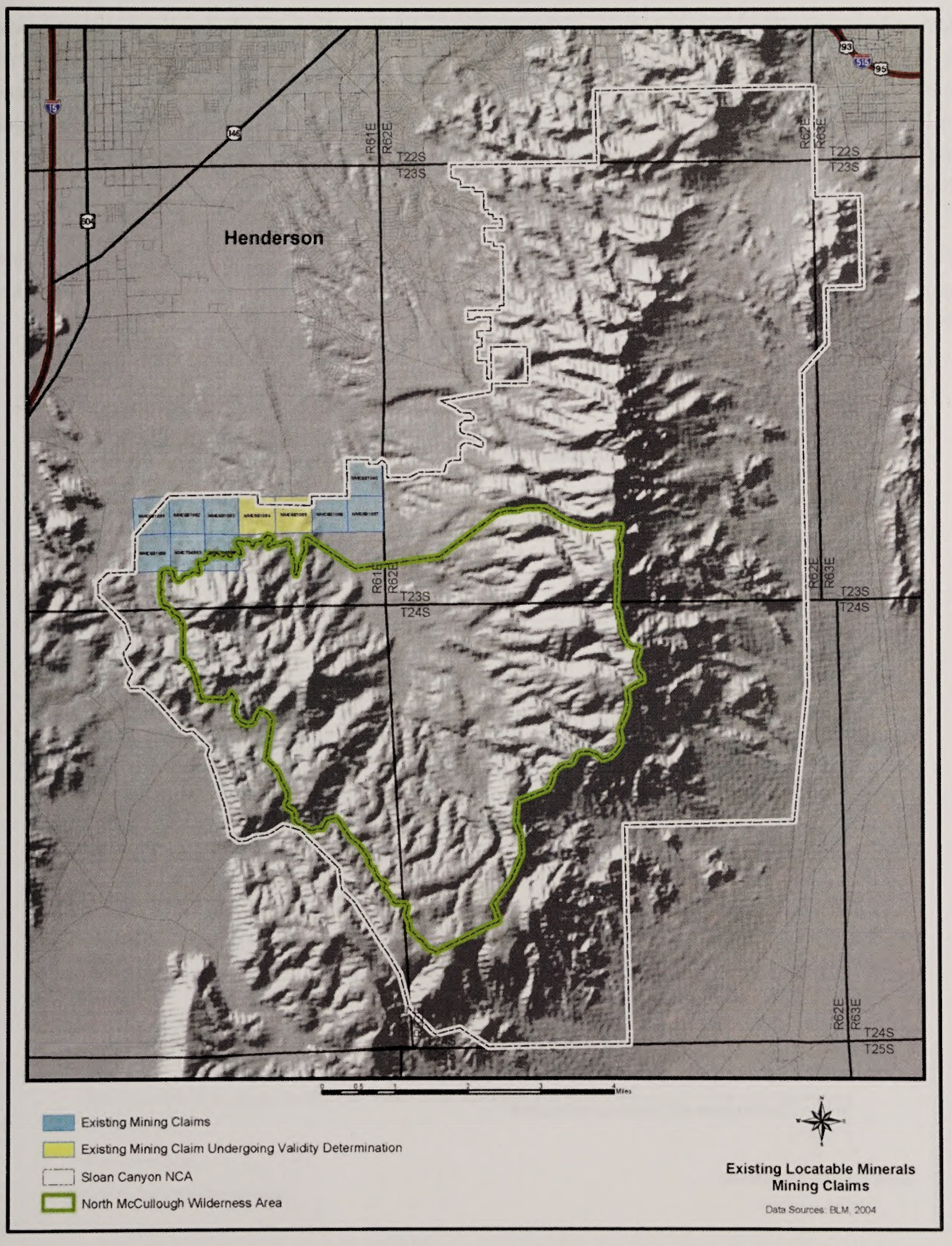
3.19 MINERALS

The Sloan Canyon NCA Act specifically addresses mining claims and states that except for "valid existing rights, all public land . . . is withdrawn from . . . location, entry, and patent under the mining laws; and operation of the mineral leasing, mineral materials and geothermal leasing laws." Therefore, only valid, existing mineral claims are recognized for this planning process.

No economic metallic minerals, uranium, thorium, or economically viable nonmetallic mineral deposits have been found within the NCA (Great Basin GEM 1983). Just inside the eastern boundary of the NCA, the Railroad Pass district produced a limited amount of gold from the Quo Vadis mine. Gold and silver was produced in 1935 and 1936 from quartz veinlets in sheared andesite (Great Basin GEM 1983).

Within the NCA boundary, there are 11 active mining claims. These claims are located in Township 23 South, Range 61 East and are within or overlap the NCA and portions of the Wilderness. A consortium of investors owns these claims, which are shown in Figure 3.23. The BLM is currently conducting a validity determination on two of the active claims, Black Mountain Number 72 and 73, as part of a land disposal action.

Figure 3.23. Existing Locatable Minerals Mining Claims



3.20 Abandoned Mines

Miners have left a legacy of constructed mining hazards in southern Nevada, which are not always apparent to visitors enjoying outdoor recreation. Common hazards include open shafts, unstable rock, and decayed support structures. The Nevada Division of Minerals, Abandoned Mine Program, was created by legislation in 1987 in response to a number of safety incidents that occurred in abandoned mine openings. The program provides for public safety by identifying and securing dangerous orphaned mine openings (State of Nevada 2001).

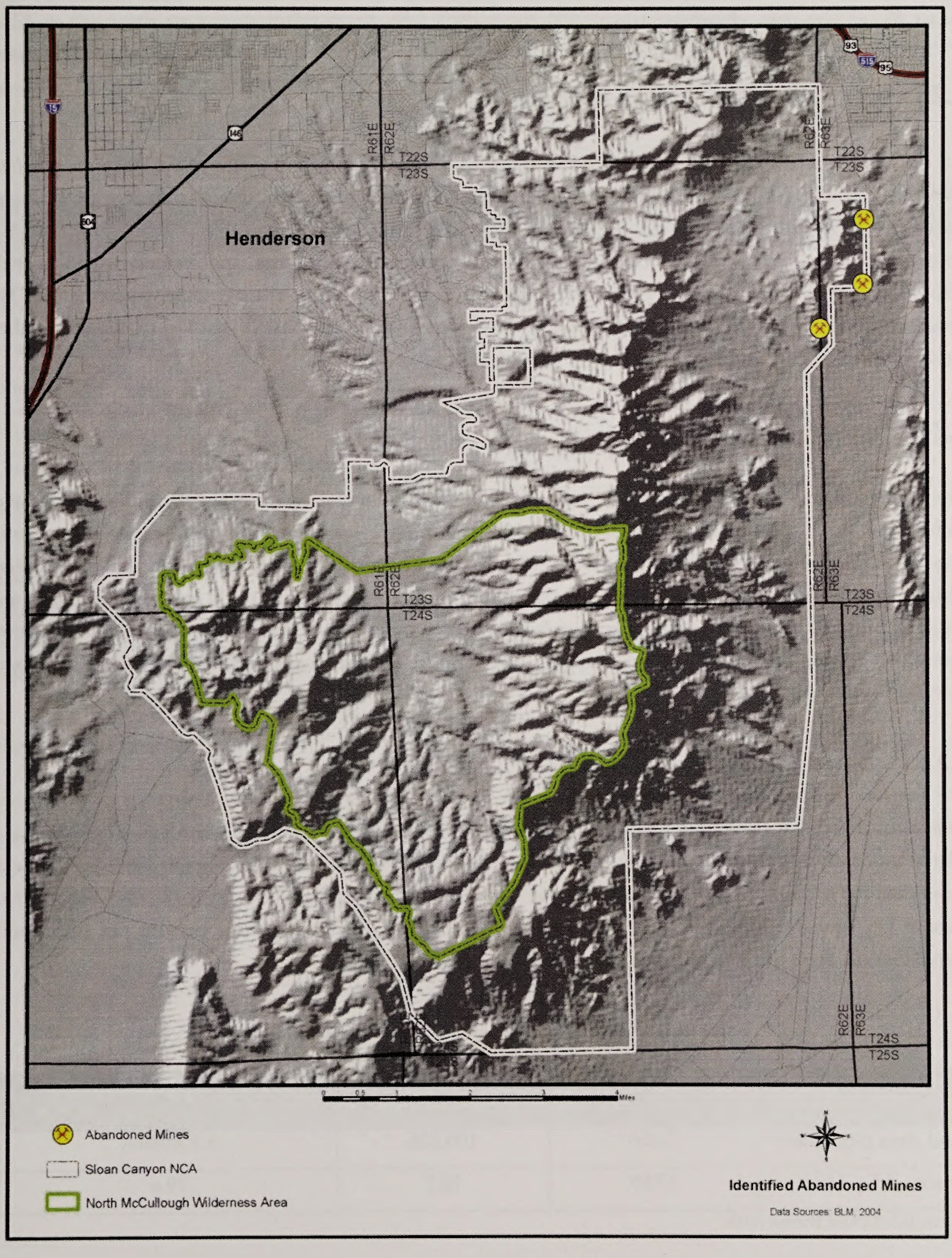
To date, 18 abandoned mine sites have been identified within the NCA (Figure 3.24 [Durbin personal communication 2003]). Most of these have been secured through backfilling, although several have been fenced or signed as presented in Table 3.10.

Table 3.10. Status of Abandoned Mine Sites Located Within the NCA

Site Number	Hazard Category	Method Secured
1400	Low	Backfilled
1401	Low	Backfilled
1402	Moderate	Backfilled
1403	Moderate	Backfilled
1404	Minimal	Backfilled
1405	High	Backfilled
1410	Moderate	Backfilled
1411	Moderate	Backfilled
1412	Low	Backfilled
1413	Moderate	Backfilled
1416	Low	Posted with Warning Signs
1417	Low	Backfilled
1427	Low	Backfilled
1466	Low	Barricaded
1467	Minimal	Posted with Warning Sign
1468	Low	Not Secured

Source: Durbin personal communication 2003.

Figure 3.24. Identified Abandoned Mines



During the Cultural Resources inventory, 11 inconsequential mining-related features such as crude, shallow adits or prospects, and cairns were found, as well as one more substantial site. This last site contains a 20-footshaft and remnants of a check-dam.

3.21 Hazardous Materials Management

At this time, there is no known hazardous materials contamination within the NCA (Moran personal communication 2003). The BLM Hazardous Materials Program is responsible for compliance with Federal, State, and local management requirements. All non-Department-of-Interior groups whose activities are within the NCA (such as claimants, concessionaires, contractors, permittees, and leasees) would be held responsible for compliance with Federal, State, interstate, and local waste management requirements. The program is also responsible for aggressively pursuing potentially responsible parties to remediate their contamination of BLM lands and facilities or to recover costs of cleanup.

3.22 Socioeconomics

The socioeconomic context refers to the social, economic, and cultural connections of nearby communities with the NCA. It incorporates the region's social history and provides a baseline for assessing the potential impacts of RMP alternatives. Activities in the NCA have the potential to affect individuals and communities within Clark County; as such, the county was designated as the socioeconomic study area. Demographic and economic data for the study area have been collected from a variety of sources. In most cases, a 10-year time frame was applied to examine recent trends in demographic and economic parameters for the study area discussed in detail below.

3.22.1 Demographic Characteristics

Unlike much of Nevada and the western United States, Clark County, especially the Las Vegas Valley is relatively densely populated. Although Nevada's overall population density (18.2 persons per square mile) is lower than the national average (79.6 persons per square mile), the population density for Clark County (173.9 persons per square mile) indicates its metropolitan nature. Clark County has more persons per square mile than either the State of Nevada or the United States, as shown in Table 3.11.

Table 3.11. Population Density of Clark County, Nevada

Geographic Characteristics	Clark County	Nevada	United States
Land Area (Sq. Miles)	7,910	109,826	3.5 Million
Persons / Sq. Mile	173.9	18.2	79.6

Source: U.S. Census Bureau 2003.

Clark County is one of the fastest-growing counties in the United States. Between 1990 and 2000, its population more than doubled, increasing by more than 880,000. The City of Henderson, which borders the NCA to the north, grew even faster during that time, nearly tripling its population. The largest population centers in the study area are shown in Table 3.12. All cities within the county are reporting tremendous growth with the exception of Boulder City.

Table 3.12. Population Centers Within Clark County, Nevada

City	Population 1990	Population 2000	Percentage Change in Population 1990-2000
Las Vegas	260,561	483,937	86%
Henderson	71,136	179,558	152%
North Las Vegas	52,387	117,975	125%
Boulder City	13,731	15,042	10%
Mesquite	2,046	9,595	396%
Unincorporated Areas	341,507	587,647	72%

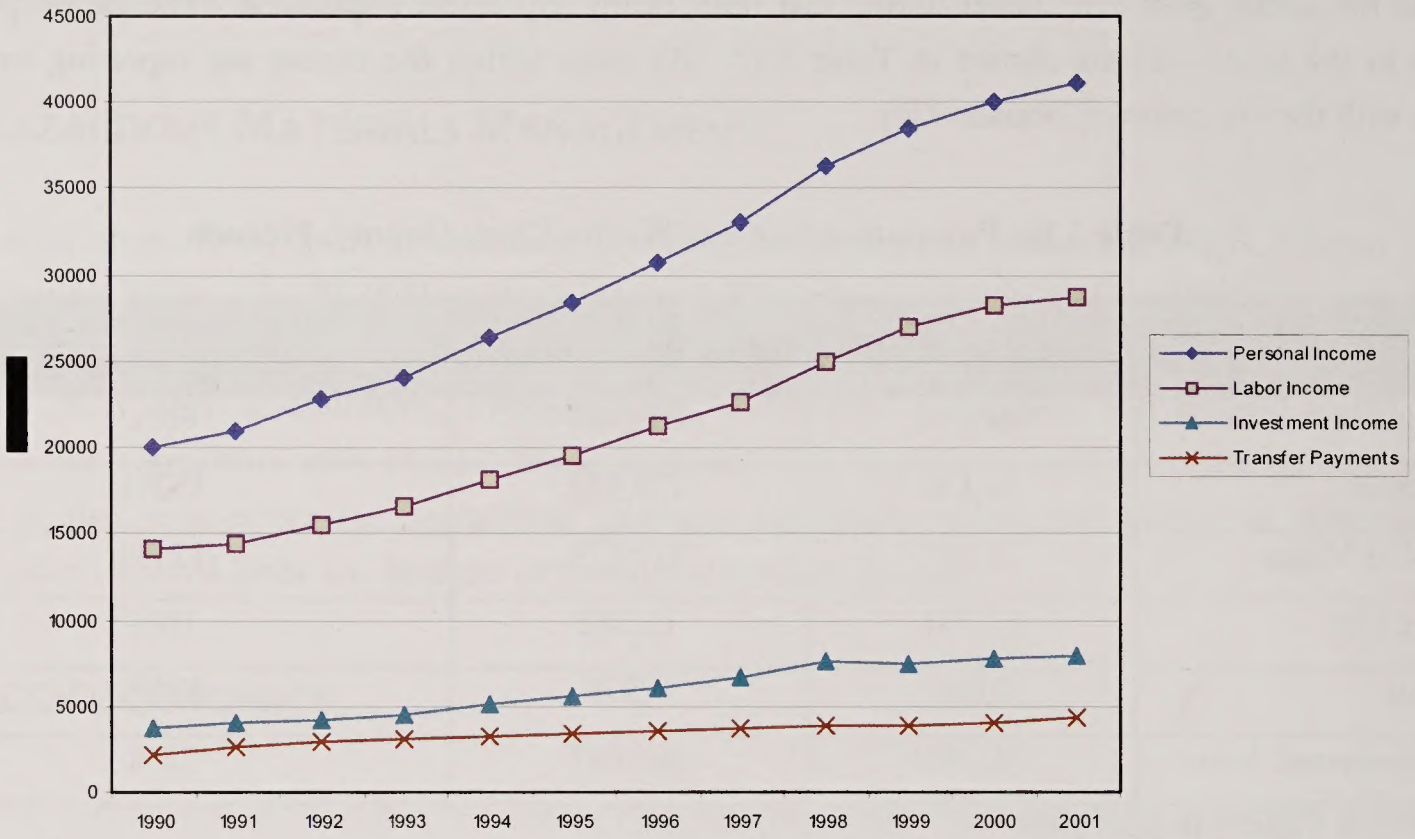
Source: U.S. Census Bureau 2004.

The primary reasons for the population surge include an influx of new residents moving to Clark County to take advantage of increased economic opportunities and relatively low cost of living. Employment in the construction, hotel/casino, education, government, and service industries provides an incentive for people to relocate to Clark County. In addition, many new residents move to the Las Vegas Valley to retire.

Per-Capita Personal Income

According to the U.S. Bureau of Economic Analysis, total personal income for Clark County almost tripled since 1990. As shown in Figure 3.25, total personal income increased by more than $21 billion during the 1990s representing more than a 100 percent increase.

Figure 3.25. Personal Income Trends 1990-2001 (2000$)



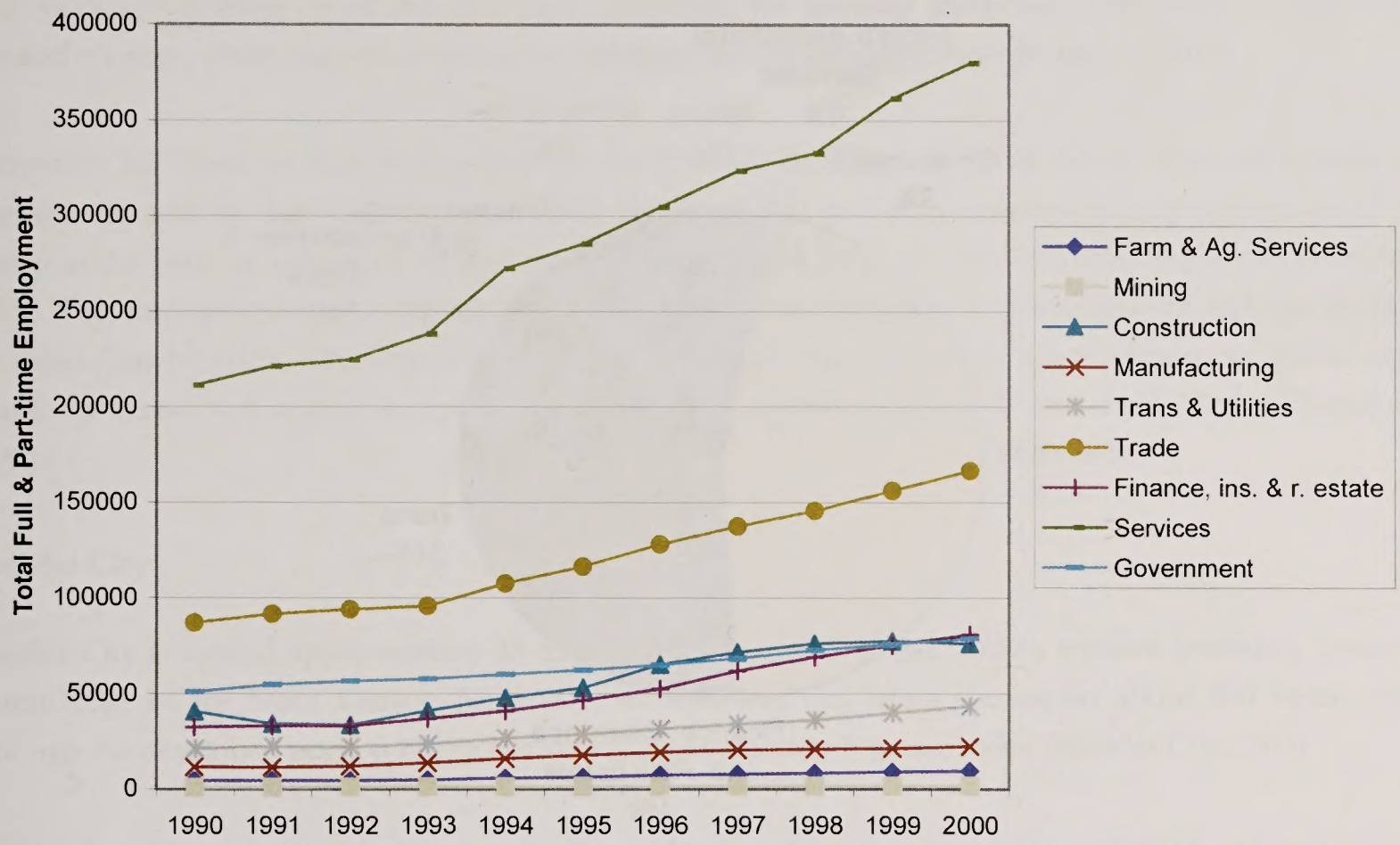
Source: U.S. Bureau of Economic Analysis 2002.

3.22.2 Economic Characteristics

Gaming and tourism are important parts of the economic fabric of Clark County. Gaming-related services employ a large percentage of the populace in the county, and the economic effects of gaming are realized throughout the area. The number of employees in gaming has steadily increased during the last 5 years with the exception of 2001. Overall gaming employment increased by 27,000 jobs between 1997 and 2001 (Nevada Department of Employment 2004b). Additionally, gaming employment has consistently constituted approximately 25 percent of all jobs in the Las Vegas Metropolitan Statistical Area. The number of hotel and motel rooms in Las Vegas and gross gaming revenue has also grown over the last 5 years, and visitation has increased by approximately 4.5 million visitors (University of Nevada Las Vegas, Center for Business and Economic Research 2004).

Employment trends for Clark County by industry for 1990 through 2000 are summarized in Figure 3.26. The service sector leads industry in terms of employment growth having gained more than 168,000 jobs during the 1990's. This sector is followed by trade (79,000) and finance, insurance, and real estate (Fire, Insurance, and Real Estate [F.I.R.E]) (48,000).

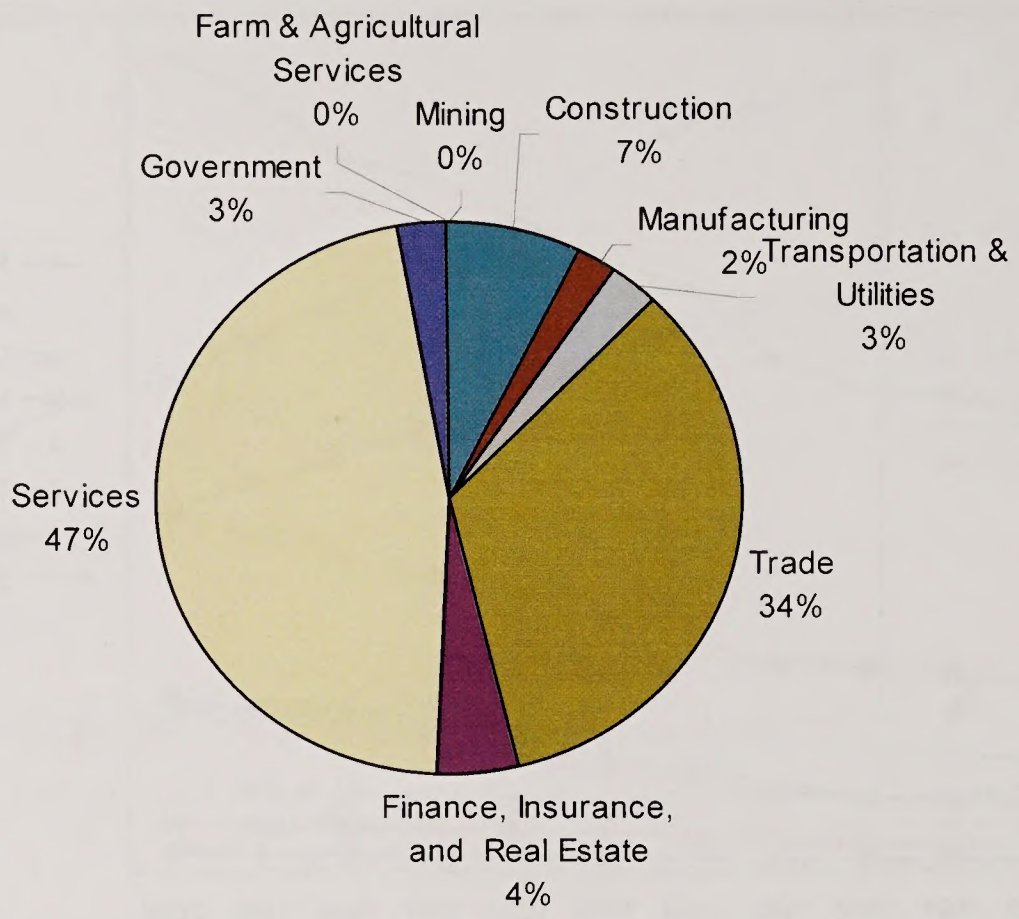
Figure 3.26. Clark County Employment Trends by Industry, 1990-2000, SIC[i] data



Source: U.S. Bureau of Economic Analysis 2002

Figure 3.27 summarizes percentage of employment by industry for 2002. Services and trade dominate employment, composing 81 percent of total employment in the county.

Figure 3.27. Clark County Employment by Industry, 2002, NAICS Data



Source: U.S. Bureau of Economic Analysis 2002

3.22.3 Social Conditions

Clark County is one of the fastest-growing areas in the country. As a result, the social fabric is also changing within the county. This section provides a summary of some of the trends occurring in the study area including the two closest cities, the City of Henderson and Boulder City.

City of Henderson

The City of Henderson was incorporated in 1953 and has grown to be the second largest city in Nevada.

It remains one of the top five fastest-growing cities in the nation. The City of Henderson encompasses the southern rim of the Las Vegas Valley with access to the Sloan Canyon NCA, Colorado River, and Lake Mead. This picturesque city has been named among the "Top 50 Safest Cities" in the United States (Turner 2000), among the "Top 50 Kid Friendly" cities in the United States (Population Connection 2001), and has nationally accredited Fire, Police, and Parks and Recreation Departments.

The city started as a bedroom community for Las Vegas but is now becoming one of the nation's top retirement destinations (Turner 2000). The population growth has generally consisted of active seniors in

their mid-fifties to mid-sixties or single young adults in their twenties to early thirties (Woodbury 2004). Excluding the lower volume of politically inactive transient population, the city's politics are viewed mostly as "old Nevada," focusing on schools and roads. However, the growing retirement community is beginning to demand services, which may strain the social fabric of the City of Henderson (Rothman 2004).

Recreation has been an important thread in the City of Henderson's social fabric. The city's parks and recreation system are nationally recognized for excellence and will have the most extensive recreational trail system in the State as a result of the passage and implementation of the 1997 bond issue (City of Henderson 2003). This trail system can be expanded and enhanced through cooperative development with the BLM for the Sloan Canyon NCA. The City of Henderson was also the first city in Nevada to construct a public super-recreation center and aquatic complex; two more were constructed in 2000 and 2002 (City of Henderson 2003).

Boulder City

Boulder City is located approximately 25 miles southeast of Las Vegas, and its western boundary forms the eastern edge of the Sloan Canyon NCA. The incorporated city limits encompass about 200 square miles, although the developed portion of the city is only approximately 5 square miles (Boulder City 2003).

Boulder City was created for the construction of Hoover Dam between 1931 and 1935 and housed over 4,000 workers. Once the dam was completed, the Federal Government changed the basic function of the city to the headquarters of several government agencies involved in the dam's water and power operations. Boulder City was supervised and regulated by the Bureau of Reclamation, and the Federal Government owned city land.

In 1958, the Federal Government passed the Boulder City Act, which established Boulder City as an independent municipal government. Under the act, the Federal Government turned over the existing town site, approximately 33 square miles of land, and the utility system to the residents. The City Charter prohibits gambling, which makes Boulder City unique as the only city in Nevada where gambling is illegal.

In 1979, Boulder City citizens passed a referendum that instituted a controlled-growth ordinance. This controlled-growth ordinance was enacted in response to the rapid growth of the city and to preserve the utility systems (Boulder City 2003). Since the inception of the controlled-growth ordinance, the growth of the community has been limited to approximately 3 percent per year. However, in actuality, the city's growth rate has remained significantly below the 3 percent cap and has declined from 2.7 percent in the 1980's to 1.76 percent in the 1990's (Boulder City 2003). This is primarily due to the fact that much of the privately held land within the city has already been developed as well as most of the land that was not subject to the controlled-growth ordinance.

In 1995, the city purchased over 100,000 acres of the former Eldorado Valley Transfer Area from the Colorado River Commission for the purposes of public recreation, solar energy uses, and a desert tortoise reserve. This addition brought the city's total land area to about 200 square miles.

3.23 Environmental Justice

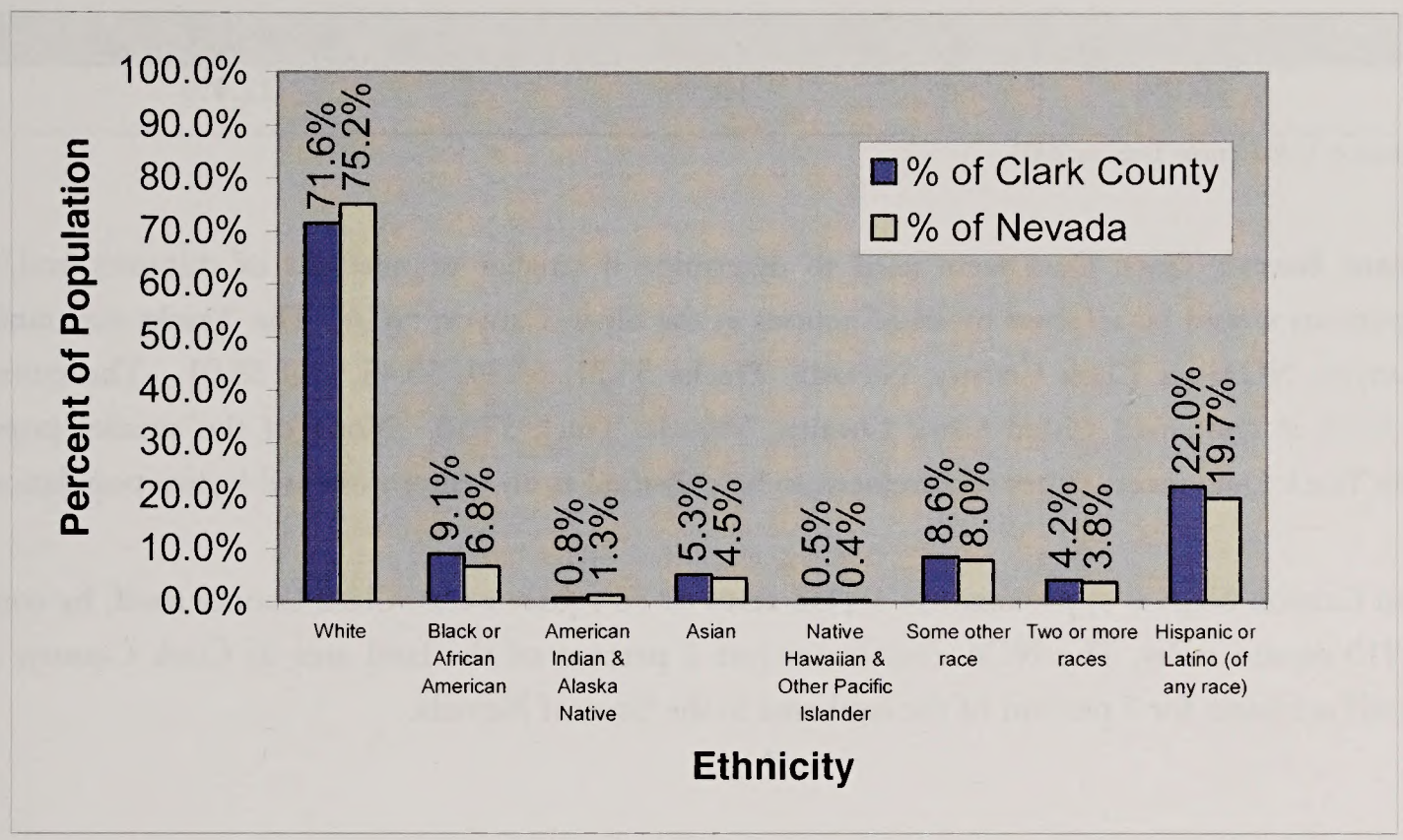
Federal agencies must identify and address disproportionately high and adverse effects of Federal actions on the health or environment of minority and low-income populations (Executive Order 12898, *Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations).*

Relevant census data for Clark County were collected to determine whether the populations residing within the study area constitute an "environmental justice population" by meeting either of the following criteria:

- At least one-half of the population is of minority or low-income status.
- The percentage of population of minority or low-income status is at least 10 percentage points higher than for the entire State of Nevada.

Figure 3.28 shows distribution of the population by ethnicity for the study areas and the State of Nevada during 2000. There are only slight differences in ethnic composition between the study area and the state. The study area reported a slightly higher percentage of minorities than the statewide figures including Black or African American and Hispanics or Latinos of any race. The percentage of other ethnic groups are small and very similar to Nevada as a whole. Although no Native American lands border the NCA, approximately 0.8 percent of Clark County's population is American Indian and Alaska Native. Clark County does not constitute an "environmental justice population" because it does not meet either of the criteria listed above.

Figure 3.28. Population Ethnicity for Clark County and State of Nevada



Source: U.S. Census Bureau 2003

The BLM consulted with 11 Native American tribes and 4 Paiute bands that claim ancestral ties to, or traditional cultural use of, the lands included within the NCA. The tribes identified one culturally significant place, the Sloan Canyon Petroglyph Site within the NCA. Sloan Canyon is listed on the NRHP as an archeological site and it also meets Criterion A as a Traditional Cultural Property.

Table 3.13 summarizes the median household income for Clark County, Nevada, and for the United States for 1999. This table shows that the median household income in Clark County was above the State and national levels for 1999. Poverty levels for each area are summarized in Table 3.14. The percentage of persons considered living below the poverty level was slightly higher in Clark County than throughout Nevada but below national poverty levels. These two tables suggest that Clark County does not have low-income populations that could be affected by BLM actions. Nonetheless, smaller populations of minority and/or low-income persons could be affected by BLM actions.

Table 3.13. Median Household Money Income, 1999

Clark County	Nevada	United States
$44,616	$44,581	$41,994

Source: U.S. Census Bureau 2003

Table 3.14. Percentage of Persons Below Poverty, 1999

Clark County	Nevada	United States
10.8%	10.5%	12.4%

Source: U.S. Census Bureau 2003

U.S. Census Bureau Track Data were used to determine if smaller populations of minority and/or low-income persons would be affected by BLM actions at the Sloan Canyon NCA. The Tracks surrounding the Sloan Canyon NCA are Clark County, Nevada, Tracks 53.31, 53.39, 53.45, and 55.01. The entire Sloan Canyon NCA is contained within Clark County, Nevada, Track 57.10. None of the smaller populations within the Track Data meets either requirement to be classified as an "environmental justice population."

The Sloan Canyon NCA is approximately 48,438 acres or 76 square miles. Clark County itself, by contrast, is about 7,910 square miles. The NCA constitutes just 1 percent of the land area in Clark County, and the county itself accounts for 7 percent of the land area in the State of Nevada.

CHAPTER 4

Environmental Consequences

4. ENVIRONMENTAL CONSEQUENCES

This chapter evaluates potential environmental impacts that could occur from implementing each management action described in Chapter 2 of this Draft Resource Management Plan/Environmental Impact Statement (EIS). The baseline used for determining the potential impacts is the current resource condition described in Chapter 3. In general, this chapter is organized by resource topic and contains potential impacts from implementing actions in the four alternatives, as well as actions that are common to all of the alternatives. The exception to this organizational rule is impacts from the proposed southern and northern corridors for the North McCullough Road Right-of-Way (ROW). For ease of comparison, the impact presentation in that section is reversed: The text discusses how each of the corridor options could affect other resources. Discussions of cumulative impacts, irreversible and irretrievable commitment of resources, unavoidable adverse impacts, and the relationship between local short-term uses and long-term productivity conclude the chapter.

4.1 INTRODUCTION

The purpose of this chapter is to determine the potential for significant consequences to the natural and human environments from the planning alternatives. The analysis includes determinations of three types of impacts, where applicable: direct, indirect, and cumulative. The duration, intensity, and context (local, regional, or national effects) of impacts are interpreted, where possible. Some actions would be implemented for all alternatives (common to all), and impacts from these actions begin the discussion for each resource.

The alternatives were constructed to avoid or reduce resource impacts as much as possible, so the potential impacts discussed in this chapter are considered unavoidable if the alternative actions are implemented. Consequently, the impact analysis for some resources indicates that no impact would occur from implementing the actions or that the impact magnitude would be negligible. For example, no impacts have been identified for actions related to special designations (Areas of Critical Environmental Concern [ACEC]), wildland fire management, water resources and quality, geology, minerals, abandoned mines, and hazardous materials. Therefore, these resources are not included as resource topics in this chapter. In addition, if there were no impacts from a specific action or the impact would be negligible, the action is not included in the section.

4.1.1 Methodology

Impact analysis is a cause and effect process. The detailed impact analyses and conclusions contained in this Draft RMP/EIS are based on the planning team's knowledge of resources and the project area, reviews of exiting literature, and information provided by experts in the BLM, other agencies, and Tribes. The management actions for all alternatives have been configured to maximize benefits and minimize adverse effects on both ecosystem function and the human environment.

This Draft RMP/EIS is based on the best available data for each resource, but because of the National Conservation Area's (NCA) undeveloped nature, specific resource information was often unavailable. In some cases, additional data were required as part of the planning effort to provide sufficient information upon which to base informed judgments. For example, some of the independent studies conducted as part of this planning process included the Native American traditional use of the area, archaeological site composition and distribution, and vegetation community surveys.

Impacts from resources were analyzed and are discussed in detail commensurate with resources issues and concerns identified through scoping. GIS analyses and data from field investigations were used to quantify effects where possible, however, in the absence of quantitative data, best professional judgment was used. Acreage figures and other numbers used in this analysis are approximate projections for comparison and analytic purposes only. They do not reflect exact measures of precise calculations. At times, impacts are described using ranges of potential impacts or in qualitative terms.

4.1.2 Impact Terminology

This chapter uses the terms "impacts" and "effects" interchangeably and the terms "increase" and "decrease" for comparison purposes. Other terms used to describe impacts are defined as follows:

- Direct effect: These are effects that are caused by the action and occur at the same time and place.
- Indirect effect: These are effects that are caused by the action occur later in time or are removed in distance, but are still reasonably foreseeable.
- Cumulative effect: Results from individually minor but collectively significant actions taking place over time.

Intensity/Magnitude

- Negligible: The impact is at a lower level of detection, and there would be no measurable change.
- Minor: The impact is slight but detectable, and there would be small change.
- Moderate: The impact is readily apparent and could result in a small but permanent measurable change.
- Major: The impact is large, and there would be a highly noticeable long-term or permanent measurable change.

Context

- Localized impact: The impact would occur in a specific site or area. In comparing changes to existing conditions, the impacts would be detectable only in localized areas.
- Broad impact: The impact would occur only within the Sloan Canyon NCA but would be larger than the localized impact.
- Regional impact: The impact would occur within southern Nevada.
- National impact: The impact would occur within the United States.

Duration

- Short-term effect: The effect would occur only during or immediately after implementation of the action.
- Long-term effect: The effect could occur for an extended period after implementation of the action. The effect could last several years or longer.

To the extent possible, impacts are identified objectively, without characterization as positive or negative, so that the reader may make his or her own judgment. The reason for this approach may be apparent in the recreation discussion that follows. For example, an action under the various alternatives may have a predictable outcome of significantly reducing contacts between visitors and the NCA staff. Visitors who value solitude and independence may regard this outcome as a major positive effect; those who value educational experiences with staff experts may regard it as negative. However, for broader scope issues such as providing educational opportunities in general, predictable positive and negative outcomes are described.

4.2 IMPACTS FROM NORTH MCCULLOUGH ROAD RIGHTS-OF-WAY

The Sloan Canyon NCA Act directed the BLM to grant the City of Henderson a ROW for the North McCullough Road and Trail (N-65874). The road is intended to be a paved rural road, constructed to provide access to the NCA, trailheads, and overlook points. The road is to be constructed with minimal disturbance to existing grades and vegetation, and the eastbound and westbound lanes would be separated by a natural median. The roadway would be designed for a speed limit of 35 mph unless a different speed is warranted in certain areas. Related structures could include drainage improvements, bighorn sheep crossings, and parking for trailheads and overlook points. The overall length of the project is approximately six to seven miles.

The ROW application identified two potential alternatives, based on aliquot parts: a Northern Corridor and a Southern Corridor. The BLM, in conjunction with the City of Henderson, conducted a review of these

corridors, which consisted of field surveys and resource analyses. A potential road alignment was described for each of the corridors, and natural, cultural, and design parameters were used to compare the alignments or corridors, depending on the detail of available data.

The potential impacts of constructing a road along either of these corridors is described differently in this section than the impacts for all other resources in this chapter. Instead of discussing the impacts to one resource from another (e.g., impacts to wildlife from facilities), for ease of comparisons this section presents how the potential corridors will affect other resources (e.g., the impacts of the Northern Corridor on wildlife).

Table 4.1 compares potential environmental, design, and construction impacts for the Northern and Southern Corridors for resources for which differences can be discerned. This section does not, however, discuss the all of the resource impacts that could occur from the construction and operation of one of these alternatives as the Sloan Canyon NCA Act requires BLM to recommend a location for the North McCullough Road and Trail ROW.

Table 4.1 Impacts from the North McCullough Road Northern and Southern Corridors

Impacts to Resource Area	Impacts from Northern Corridor	Impacts from Southern Corridor
Recreation	• Access to recreation opportunities – hiking, equestrian use, mountain biking – depending on alternative chosen. • Allows access to numerous basins and canyons providing recreational opportunities. Provides more diverse geography and vegetation.	• Access to recreation opportunities – hiking, equestrian use, mountain biking and OHVs – depending on alternative chosen. • Follows a single canyon up the east side of the range that has steep walls with minimal side canyon access. Provides less access to recreational areas.
Visual Resources	Provides numerous vistas for scenic overlook opportunities and multiple viewsheds along the alignment. Surrounding area can be restored to natural conditions adjacent to roadway and trail.	Alignment through a single, steep-walled canyon provides limited vistas. Existing power lines negate scenic view potential along nearly 4 miles of the roadway alignment
Vegetation (Potential Habitat)	Rosy two-tone beardtongue; 61 acres	Rosy two-tone beardtongue; 154 acres

Impacts to Resource Area	Impacts from Northern Corridor	Impacts from Southern Corridor
Wildlife (Potential Habitat)	Bighorn lambing habitat: 0 acres Bighorn winter habitat: 251 acres Desert tortoise: 1042 acres Gila Monster: 1283 acres Chuckwalla: 394 acres Phainopepla: 41 acres	Bighorn lambing habitat: 92 acres Bighorn winter habitat: 283 acres Desert tortoise hbitat : 1154 acres Gila Monster: data 1416 acres Chuckwalla : 332 acres Phainopepla: 19 acres
Hydrology	Potential for erosion on and along alignment would be less than that for southern alignment, with increased erosion at drainage crossings. Drainage structures would need to be designed with erosion protection.	Potential for erosion on and along alignment would be significant because of steep slopes. Significant improvements would be required along the majority of the alignment.
PM10 Construction: 0.265tons/ac/ month Operational:2.1E-3 tons/yr/Vehicle Mile Travelled	11.1 tons/yr 42.4 tons/yr	13.1 tons/year 31.5 tons/year
Roadway length	6.56 miles	7.52 miles
Disturbance	41.9 acres	49.3 acres
Cut/Fill (cubic yards)	Cut: 30,109 Fill: 102,621	Cut: 40,183 Fill: 176,859
Grades	Maintains a rolling alignment with shorter lengths of 12%.	Very steep grades for excessive lengths. City of Henderson requires a maximum of 700 feet for grades at 12%.
Constructability	• Constructed across numerous washes.	• Constructed along and under numerous transmission lines. • Braided washes along 2 miles of the west portion of this alternative.

Impacts to Resource Area	Impacts from Northern Corridor	Impacts from Southern Corridor
Traffic Loading	3,021 average daily traffic	1,953 average daily traffic
Vehicle Miles Traveled	19,818 miles per day	14,687 miles per day
Cost	$13,000,000	$15,000,000

Source of engineering/cost data: City of Henderson letter report

4.3 IMPACTS TO RECREATION

The potential impacts of planning decisions on the visitor experience, and their magnitudes, depend on the expectation and values of the individual user. A particular action could benefit some users and have a negative effect on others. Sensitivity to impacts will vary among user types and will be different between new users and traditional users.

Because of the NCA's undeveloped nature, recreation management of the NCA is intended to change over time as monitoring-based management decisions are implemented. Recreation activities within the NCA are expected to increase greatly as public awareness of the NCA grows and as the population of Clark County continues to increase. The primary use areas of the NCA are likely to be the North McCullough Wilderness Area, Sloan Canyon Petroglyph Site, designated trails, and areas around developed facilities. The NCA and its visitors will be monitored; if visitation is causing resource damage, user conflict, or crowding at attraction areas, actions could be taken to enhance the visitor experience and protect resources.

4.3.1 Impacts to Recreation Under Common to All Alternatives

To Recreation from Recreation (Common to All Alternatives)

Requiring special recreation permits (SRPs) for commercial, competitive, and vending uses, as well as for organized groups, would have a minor impact on recreation by maintaining consistent uses within the management emphasis areas and avoiding potential use conflicts between users. For example, issuing SRPs to outfitters and guides for wildlife hunts within the NCA would moderately decrease conflicts because hunting could be located in appropriate areas and other recreation users could be informed of the hunting. Conducting ongoing evaluations of the number, type, and appropriateness of SRPs and considering issuance limits could have long-term, beneficial impact by decreasing conflict among user groups, decreasing impacts to natural and cultural resources, and maintaining opportunities for all appropriate types of recreation within the NCA. Limiting SRPs could cause a minor loss of economic opportunity for commercial outfitters.

Implementing user fees in specific areas of the NCA could have a minor impact on the pattern, timing, and total number of visits to the NCA. Some visitors might not be willing to pay for access, regardless of cost, so recreation use could be displaced from fee areas to non-fee areas. The frequency of visits by local and/or regional recreationists also could decrease, but fees would not be likely to influence levels of visitation from outside the local area. Fees could improve maintenance of recreation facilities by providing additional funding for the NCA.

Installing visitor registers would help establish the visitor use baseline, could be used to monitor changes to that baseline, and provides a mechanism for receiving feedback on the NCA's visitor experience.

Requiring permits for overnight parking would enhance resource management and the visitor experience by providing a mechanism to support overnight use of the NCA, such as camping.

Allowing only horses, burros, or mules to transport people and supplies within the NCA would restrict the use of other types of pack animals (e.g., llamas, goats) for trail and cross-country hiking. This action would limit recreational opportunities for users of these nontraditional pack animals.

To Recreation from Wilderness (Common to All Alternatives)

Adopting a flexible and responsive approach to managing recreation uses of the Wilderness would have a major, long-term beneficial effect on the visitor experience because management approaches could be modified on the basis of resource and visitor monitoring. Establishing resource baselines before the predicted large increase in visitation occurs will enable the BLM to monitor/predict changes to wilderness characteristics and to modify recreation management actions as necessary.

To Recreation from Interpretation (Common to All Alternatives)

Preparing a Comprehensive Interpretive Plan in conjunction with the Tribes, cooperating agencies, and volunteer organizations would have a long-term, major impact on recreation. With enhanced interpretive background and up-to-the-day site information, visitors would be better able to plan their recreational trips to the NCA. Policies to develop interpretive outreach would enhance the recreation experience and provide exposure to the significant resources of the NCA. These interpretive and educational actions would increase the visitor's sense of appreciation and understanding of resources, as well as the visitor's awareness of important and sensitive cultural values. Indirect benefits would stem from a decrease in inadvertent visitor impacts, which would enhance the ability to manage critical physical and social resources.

Implementing an anti-litter program and public awareness campaign would have a moderate impact by providing volunteer opportunities, visitor satisfaction in a litter-free NCA, and a more natural, healthy, and functioning ecosystem.

To Recreation from Transportation (Common to All Alternatives)

Installing physical barriers or completing vegetation restoration on closed roads and routes would have a moderate long-term impact to recreationists by decreasing motorized trespass.

To Recreation from Wildlife Management (Common to All Alternatives)

Working cooperatively with agencies such as the Nevada Department of Wildlife (NDOW) to promote healthy and viable wildlife populations in the NCA would cause a moderate, long-term impact to recreationists by increasing wildlife viewing opportunities. Avoiding construction of recreation improvements, such as trails, within ¼ mile of wildlife water developments could have a minor impact on visitors wishing to go directly to the water developments; overall, however, this action would be likely to lead to improved wildlife populations. There could be a short-term, minor decrease in visitor satisfaction because of disruptions from construction and maintenance if any new wildlife water developments are installed.

4.3.2 Impacts to Recreation Under Alternative A: No Action

To Recreation from Recreation (No Action)

Continuing to manage NCA recreation in accordance with the recreation opportunity spectrum classes designated through the *Las Vegas RMP* (BLM 1998a), with the Wilderness as Primitive, would maintain existing levels of recreation opportunity. The recreation opportunity spectrum classes are somewhat obsolete, however, because they are not consistent with the intent of the Sloan Canyon NCA Act. For example, the opportunity for off-road vehicle touring (Roaded Natural Recreation Opportunity Spectrum [ROS] zone) is identified in areas where no roads exist and is in the BLM OHV closure area (Figure 2-4).

Hiking/Equestrian Use/Mountain Biking

Continuing to allow hiking and equestrian use throughout the NCA would maintain existing opportunities for primitive, off-trail hiking and horseback riding. User conflicts and long-term resource damage could moderately increase if hiking and horseback riding occur without management controls. Without the benefit of designated trails or facilities to mitigate impacts, sensitive resource areas could be affected, potentially causing a moderate impact on the user experience. Opportunities for mountain biking on existing roads, routes, and trails within the NCA, but outside the Wilderness, would be maintained. Minor user conflicts and resource impacts could occur.

Trails

Designating and constructing trails on a case-by-case basis would maintain or increase opportunities for trail-based recreation in the NCA, although designating some of the existing trails could have minor impacts on the quality of recreation because of their inappropriate location and design. Restoring unauthorized trails

could cause a minor decrease in recreation opportunities but would maintain or improve resource conditions and limit inappropriate uses.

OHV

The Sloan Canyon NCA Act allows the use of motorized vehicles only on designated roads and trails, so not designating any routes or trails eliminates this recreational activity from the NCA.

Dogs/Other Recreational Uses

Existing opportunities for dog walking, rock climbing, and rock hounding would be maintained within the NCA; as use of the area increases, however, there could be moderate to major user conflicts and impacts to resources without increased management. Allowing unpermitted, unlimited collection of rock and minerals could lead to depletion of rare mineral resources and affect the enjoyment of future generations. Allowing geocaching within the NCA could cause minor impacts to cultural and natural resources from repeated off-trail travel, proliferation of trails, and conflicts with other recreationists.

Allowing recreational shooting in portions of the NCA outside of the existing *Las Vegas RMP* closure would maintain shooting opportunities on about 25,616 acres in the southern portion of the NCA. Major conflicts with other recreation activities could occur because of hazards associated with shooting, the density of other recreation uses, and the small size of the NCA.

Nighttime Use

Continuing to allow camping and fires within the NCA, subject to the existing *Las Vegas RMP* closure, would maintain the opportunity for primitive and dispersed camping. Allowing campfires also would maintain or cause minor increases in inappropriate development of fire rings, illegal disposal of trash, and human-caused wildfire.

Special Recreation Permits

Continuing to issue special recreation permits according to BLM policy, including prohibiting competitive or vending permits in the Wilderness, would maintain opportunities for commercial, competitive, special area, and organized recreation within the NCA. Requiring organized groups to obtain special recreation permits on a case-by-case basis, under the same constraints as before the NCA designation, would maintain existing opportunities for organized recreation.

To Recreation from the North McCullough Wilderness Area (No Action)

Visitation

Managing visitation according to BLM policy and keeping solitude to existing levels would maintain opportunities for primitive and unconfined recreation within the Wilderness. Designating trails on a case-by-

case basis would maintain existing opportunities for primitive, unconfined recreation and could meet demand for trail-based recreation.

Sloan Canyon Petroglyph Site Management

Allowing use of the Sloan Canyon Petroglyph Site to continue with no restrictions on numbers, timing, or manner of visitation would maintain users' spontaneity and freedom for primitive and unconfined recreation. As visitation at the NCA increases, however, so would user conflicts in the form of decreased solitude, increased noise while at the site, and reduced satisfaction with viewing this important cultural resource.

Recreation

Continuing to allow camping and campfires in the Wilderness would maintain primitive and unconfined recreational opportunities but could also have minor, long-term impacts by increasing the risk of site devegetation, inappropriate development of multiple fire rings, illegal dumping of trash, and human-caused wildfire.

Continuing to allow rock climbing, dogs, and geocaching in the Wilderness would maintain existing recreational opportunities but could cause minor impacts associated with repeated off-trail travel to cultural and natural resources. In addition, moderate to major recreational conflicts with other users could increase.

Signage

Installing trailhead access signage on a case-by-case basis could maintain existing opportunities for primitive, unconfined recreation by limiting the number of developed Wilderness access points. However, limiting access signage could have minor impacts on trail-based opportunities because visitors may not know how to enter and experience the area.

Disturbance

Restoring vandalized and disturbed areas within the Wilderness, such as two-track roads, to natural conditions would increase the character of the Wilderness. Nonetheless, the restoration activities themselves could produce minor to moderate short-term impacts to the visitor experience by decreasing solitude due to the presence of the work crews and naturalness from the activity intrusion. The disturbances may have existed at the time of Wilderness designation or could occur in the future.

To Recreation from Cultural Resources (No Action)

Existing recreation opportunities would be maintained if cultural resources are managed under Section 106 of the National Historic Preservation Act (NHPA) and appropriate guidance when these opportunities are threatened by any land-disturbing activities. Managing cultural resources within the Sloan Canyon Petroglyph Site and other areas for conservation of their scientific or historic value could have moderate recreational impacts if sites are avoided for resource protection. If rock shelters and rock art in areas of high recreational

use are mitigated through treatment such as data recovery or hardening, opportunities for discovery and cultural resources awareness could decrease. Performing data recovery onsite managed for scientific use, such as lithic and historic trash scatters, also would reduce the opportunity for visitor discovery.

To Recreation from Visual Resources (No Action)

Using the Visual Resource Management (VRM) classes established in the *Las Vegas RMP* (BLM 1988a) would maintain existing recreational opportunities by allowing appropriate development and retaining the critical physical, social, and managerial settings of each of the class areas. Designating the Wilderness as VRM Class I would enhance the visitor's perception of recreating in an area free from human development.

To Recreation from Facilities (No Action)

By developing no facilities and not providing offsite information about the NCA, existing recreational opportunities would be maintained, but major impacts on recreational opportunities could occur as visitation increases. Visitors would not be able to learn about recreation opportunities and resource management within the area and could cause inadvertent impacts to resources at undeveloped recreation access points.

To Recreation from Lands and Realty (No Action)

Considering new and amended ROWs on a case-by-case basis as long as the action meets the intent of the Sloan Canyon NCA Act would help ensure protection of resources and maintain the naturalness of the NCA. Performing an environmental analysis before issuing film permits also would help protect resources and reduce the possibility of a degraded visitor experience from use conflicts with film crews.

To Recreation from Transportation (No Action)

Passage of the Sloan Canyon NCA Act closed all roads and routes in the NCA to public motorized vehicle use unless designated as open.

To Recreation from Vegetation Management (No Action)

Restoring surface disturbances and striving for optimum species diversity would have a moderate, long-term beneficial impact to recreation by increasing the naturalness of the NCA and enhancing the visitor's perception of recreating in an environment free from human disturbance. In the short term, local recreational opportunities could be lost if access is denied during rehabilitation periods or work crews affect the potential for solitude. Allowing casual collection of plants and seeds maintains recreation opportunities for visitors who enjoy such activities.

OHV

The Sloan Canyon NCA Act allows the use of motorized vehicles only on designated roads and trails, so not designating any routes or trails eliminates this recreational activity from the NCA. Prohibiting OHVs throughout the NCA would eliminate conflicts with nonmotorized recreationists and cause long-term moderate decreases in physical damage to trails and other resources. OHV use probably would be displaced to areas outside the NCA.

Dogs/Other Recreational Use

Closing the NCA to dogs, all forms of rock climbing, rock hounding, geocaching, and shooting (other than permitted hunting) would have moderate impact on some users by eliminating these types of recreation. Closures could reduce recreation conflicts and help preserve cultural and natural resources but could result in decreased visitor satisfaction.

Nightime Use

Prohibiting camping, campfires, and nighttime use in the NCA would eliminate related activities such as stargazing and night hiking. These uses do not frequently occur in the NCA, however, so impacts from these prohibitions would be minor. In addition, these closures would minimize impacts from devegetation, fire rings, trash, and human-caused wildfire.

Special Recreation Permits

Issuing special recreation permits but not competitive or vending permits would decrease opportunities for permitted recreation. Race events and vending in conjunction with organized events would be prohibited throughout the NCA, but none of these permits existed before NCA designation, so impacts would be minor. Requiring organized groups to obtain a permit outside of the Sloan Canyon Petroglyph Site could maintain or cause a minor decrease in opportunities for organized recreation, but managing these groups probably would reduce recreation conflicts and resource impacts. Allowing outfitters and guides in the NCA would increase opportunities for professionally led recreational experiences, although the potential exists for minor impacts from loss in solitude, degredation of resources, and conflicts between user groups.

To Recreation from the North McCullough Wilderness Area (Alternative B)

Visitation

Limiting visitation to a number that does not cause adverse impacts to wilderness characteristics would maintain or enhance existing primitive and unconfined recreation experiences in the Wilderness. Establishing limits could have a moderate impact on users, however, if they were restricted from accessing specified areas.

Sloan Canyon Petroglyph Site

Requiring all visitors to be accompanied by a guide when visiting the Sloan Canyon Petroglyph Site and placing restrictions on group visitation and numbers could increase visitors' interpretive and cultural experience and decrease crowding and noise, but it would eliminate opportunities for primitive and unconfined recreation use.

Controlling access to the Sloan Canyon Petroglyph Site by using the contact station and ranger/staff patrols would have a major impact on visitors' sense of primitive and unconfined recreation in the canyon by increasing management presence in the canyon. Limiting use to the canyon bottom would decrease amounts of inappropriate visitor use, causing impacts to cultural and natural resources, but it would also have minor impacts by restricting opportunities to view and photograph cultural resources on the canyon walls.

Limiting visitor use of the Sloan Canyon Petroglyph Site to the same hours of operation as the contact station could eliminate visitation during early mornings and late evenings, when demand for access could be high to avoid high summer temperatures.

Choosing not to place signage in Sloan Canyon eliminates information available to visitors through signage (interpretive information would still be available through guides) but would maintain a primitive, unconfined recreation experience. Choosing not to place improvements, such as ladders, in the canyon could limit access to the Sloan Canyon Petroglyph Site for visitors who are unable to climb over the rockfall. Placing access signage in different areas of Sloan Canyon limiting access to guided use would decrease incidents of recreationists visiting the canyon without a guide but also would decrease the area's naturalness and visitors' sense of primitive, unconfined recreation.

Recreation

Prohibiting trails within the Wilderness and blocking new social trails with natural materials would maintain existing opportunities for primitive and unconfined recreation; however, there would be no opportunities for trail-based hiking. Restoring disturbances using nonmechanized tools, without altering vegetation composition, and performing the work during low-visitation periods would enhance primitive and unconfined recreation within the Wilderness by reducing noise and management presence. Restoring disturbances also would maintain the Wilderness environment that supports this type of recreation.

Prohibiting camping, campfires, and overnight use in the Wilderness would have minor impact by eliminating opportunities for nighttime recreation and opportunities to have campfires in conjunction with these activities. However, these actions could minimize devegetation, multiple fire rings, illegal dumping of trash, and human-caused wildfires.

Closing the Wilderness to all forms of rock climbing would eliminate climbing opportunities but could reduce conflicts with other types of recreation, such as viewing cultural sites, wildlife watching, and hunting.

Prohibiting geocaching in the Wilderness would eliminate opportunities to pursue geocaching, which would help preserve cultural and natural resources, reducing conflict with other recreationists. Prohibiting dogs in the Wilderness would eliminate all opportunities for recreation with dogs, resulting in decreased visitor satisfaction but also would decrease conflict among recreationists with dogs and other users.

Signage

Choosing not to designate or sign trailheads adjacent to the Wilderness and prohibiting construction of trails within the Wilderness would maintain primitive, unconfined recreation opportunities by limiting the number of developed Wilderness access points. However, limiting access signage could have minor impacts on trail-based opportunities because visitors might not know how to enter and experience the area.

Soundscape

Maintaining natural soundscapes at or below baseline ambient noise levels would maintain existing opportunities for primitive and unconfined recreation.

Disturbance

Restoring vandalized and disturbed areas within the Wilderness, such as two-track roads, to natural conditions would increase the character of the Wilderness. Nonetheless, the restoration activities themselves could produce minor to moderate short-term impacts to the visitor experience by decreasing solitude due to the presence of the work crews and naturalness from the activity intrusion. The disturbances may have existed at the time of Wilderness designation or could occur in the future (same as No Action).

To Recreation from Cultural Resources (Alternative B)

Allowing traditional use in the Sloan Canyon Petroglyph Site could cause minor, short-term decreases in available recreation opportunities when these activities take place. Assigning any cultural resource site or site type to the traditional or conservation use categories would cause a minor decrease in recreation opportunities associated with that site by restricting use of the resource for public viewing and appreciation. Assigning any cultural resource site or site type to the public use category would maintain or increase recreation opportunities to view and appreciate cultural resources.

To Recreation from Visual Resources (Alternative B)

Designating the VRM classes as shown in Figure 2.12 would decrease opportunities for developed recreation by requiring recreation facilities to remain consistent with VRM class objectives. VRM Classes I and II would place stringent restrictions on the development of recreation facilities on 42,882 acres (approximately 89 percent) of the NCA.

To Recreation from Interpretation (Alternative B)

Minimizing the presence of on-the-ground interpretive media and ensuring that visible media are low profile and used to orient visitors and provide resource protection would enhance opportunities for primitive and dispersed recreation by restricting the amount of management presence and infrastructure visible to recreationists. Any interpretive media available to visitors could enhance recreation experiences by increasing visitor knowledge and appreciation of NCA resources.

To Recreation from Facilities (Alternative B)

Constructing a contact station near the NCA boundary at the north entrance to Sloan Canyon would have a moderate, long-term impact by decreasing primitive and dispersed use of the canyon because of additional increase in the degree of management presence and infrastructure near the canyon. This contact station could increase and enhance visitor experiences in and around the Sloan Canyon Petroglyph Site by controlling visitor access and providing visitor information.

Constructing a small gravel parking lot with an interpretive kiosk and vault toilet inside the NCA boundary at the Hidden Valley and Dutchman Pass Trailheads could enhance developed recreation opportunities by providing desired facilities and information, but it would decrease primitive visitor experiences. Providing offsite information in existing facilities throughout the City of Henderson would increase opportunities for residents and visitors to learn about the NCA and its recreation opportunities.

To Recreation from Lands and Realty (Alternative B)

Considering applications for new ROWs or amendments on a case-by-case basis subject to the evaluation criteria, could increase and enhance recreation opportunities if the ROWs provide a direct benefit by supporting recreation facilities, eliminating disturbances in recreation areas, or improving naturalness that is important to primitive, unconfined recreation. Prohibiting commercial film permits would eliminate potential conflicts between recreation uses and filming.

To Recreation from Transportation (Alternative B)

Passage of the Sloan Canyon NCA Act closed all roads and routes in the NCA to public motorized vehicle use, so not designating and roads or routes as open to licensed vehicles maintains the current recreational access.

To Recreation from Vegetation Management (Alternative B)

As in the No Action alternative, restoring surface disturbances and striving for optimum species diversity would have a moderate, long-term beneficial impact to recreation by increasing the naturalness of the NCA and enhancing the visitor's perception of recreating in an environment free from human disturbance. Focusing on restoration efforts in the more developed portions of the NCA would maintain and enhance

existing developed recreation opportunities by improving naturalness in areas of higher use. Prohibiting casual collection of vegetation would eliminate opportunities for recreational collection of plants and seeds, but this impact would be minor because of the absence of current vegetation collection.

To Recreation from Wildlife Management (Alternative B)

Providing interpretive information to visitors of the effect of recreation use on wildlife could have a minor impact in the quality of their NCA experience. Avoiding designation of trails near sensitive habitat areas, such as nesting sites, would not affect recreation opportunities because no trails are proposed under this alternative; however, permanent closures of areas or restrictions on activities to protect wildlife species could have long-term, minor impacts on recreational opportunities.

Prohibiting casual collection of reptiles within the NCA would eliminate existing opportunities for recreational collection of reptiles in the NCA but would have minor impact because of the absence of current reptile collection.

To Recreation from Livestock Grazing (Alternative B)

Eliminating the ability to authorize range improvements for grazing purposes would maintain existing opportunities for primitive, dispersed recreation.

4.3.4 Impacts to Recreation Under Alternative C: Moderate Developed Use

Impacts to recreation from Alternative C could occur in the following resource areas: recreation, wilderness, cultural resources, visual resources, interpretation, facilities, lands and realty, transportation, vegetation management, wildlife management, and livestock grazing. Impacts from special designations and wildland fire are negligible or nonexistent.

To Recreation from Recreation (Alternative C)

Dividing the NCA into MEAs as shown on Figure 2.17 would maintain nonmotorized recreation opportunities by emphasizing primitive and nonmotorized uses on 30,851 acres (approximately 64 percent) of the NCA. Opportunities for more visitor facilities and motorized travel would be increased or maintained by designating 17,201 acres (approximately 36 percent) of the NCA for roaded natural opportunities. Opportunities for the most developed types of recreation would be increased by designating 398 acres (less than 1 percent) of the NCA for developed recreation. Conflicts between user types could increase in the more developed management emphasis areas, where use would be higher.

Hiking/Equestrian Use/Mountain Biking

Requiring that hiking be limited to designated trails in approximately 27 percent of the NCA would decrease opportunities for primitive off-trail hiking, although visitors probably would welcome the opportunity for a

trail system in higher-use areas. Opportunities for primitive, off-trail hiking would be provided in the remaining 35,327 acres (approximately 73 percent) of the NCA. Allowing equestrian use within the NCA, either on designated trails or cross-country, as shown in Figure 2.18, would maintain or increase horseback-riding opportunities. Allowing mountain biking only on a designated and constructed system of multiple-use trails would have minor impacts by reducing potential user conflicts and would increase mountain biking opportunities because current opportunities are minimal as a result of road and route conditions.

Trails

Designing and constructing a trail system to accommodate multiple trail uses, with moderate levels of development providing access to an array of recreational destinations and loop trail opportunities, would increase and diversify trail-based recreation opportunities throughout the NCA. Development of this type of trail system would accommodate a broader range of uses than the No Action alternative (Alternative A) and Alternative B; it also would disperse recreation uses to more of the NCA and could be designed to reduce user conflicts and minimize impacts to sensitive natural and cultural resources. Adding trails to the trail system to improve visitor experiences when such additional trails would not cause substantial impacts to cultural and natural resources would result in increased opportunities for trail-based recreation over the long term. Conflicts among trail users would be reduced by the ability to add new trails, and the quality of recreation experiences could be diversified and expanded.

As in the No Action alternative, restoring unauthorized trails could cause a minor decrease in recreation opportunities but would maintain or improve resource conditions and limit inappropriate uses.

OHV

The Sloan Canyon NCA Act allows the use of motorized vehicles only on designated roads and trails, so not designating any routes or trails eliminates this recreational activity from the NCA. Prohibiting OHVs throughout the NCA would eliminate conflicts with nonmotorized recreationists and cause long-term moderate decreases in physical damage to trails and other resources. OHV use probably would be displaced to areas outside the NCA.

Dogs/Other Recreational Use

Allowing dogs in the NCA, if they are on leash, would increase recreational opportunities for dog owners. Sensitive resource areas could be restricted from dog entry, and animal feces would have to be removed. Some users may find dogs within the NCA objectionable. Allowing bouldering and rock climbing, without permanent anchors, would provide opportunities for visitors who enjoy the sport. Climbing would be restricted in designated sensitive resource areas, so potential impacts could be eliminated. Rock climbing could conflict with other recreation activities, such as viewing cultural sites, wildlife watching, and hunting. Allowing rock hounding in the NCA, with use authorization, would maintain existing opportunities for causal, recreational collection of geologic material but would require an administrative process.

Closing the NCA to geocaching and shooting (other than permitted hunting) would have moderate impact on some users by eliminating these types of recreation. Closures could reduce recreation conflicts and help preserve cultural and natural resources but could result in decreased visitor satisfaction.

Nightime Use

Allowing primitive and dispersed camping in designated areas of the NCA outside the Sloan Canyon Petroglyph Site would provide opportunities for camping or other overnight uses on approximately 53 percent of the NCA. Allowing campfires in the NCA—in fire pans or blankets, and requiring all fire waste products to be packed out—would minimize multiple fire rings, trash, and human-caused wildfire and increase visitors' sense of a primitive experience, although it does place a logistical burden on the user.

Special Recreation Permits

As in Alternative B, issuing special recreation permits would decrease opportunities for spontaneous recreation. Requiring organized groups to obtain a permit, outside the Sloan Canyon Petroglyph Site, could maintain or cause a minor decrease in opportunities for organized recreation, but managing these groups probably would reduce recreation conflicts and resource impacts. Allowing outfitters and guides in the NCA would increase opportunities for professionally led recreational experiences, but the potential exists for minor impacts from loss in solitude and conflicts between user groups.

Issuing competitive or vending SRPs outside the Wilderness would provide continued opportunities for event organizers or vendors to provide event services.

To Recreation from the North McCullough Wilderness Area (Alternative C)

Visitation

As in Alternative B, limiting visitation to a number that does not cause adverse impacts to wilderness characteristics would maintain or enhance existing primitive and unconfined recreation experiences in the Wilderness. However, establishing limits could have a moderate impact on users if they were restricted from accessing specified areas.

Sloan Canyon Petroglyph Site

Providing periods of both guided and self-guided use of the Sloan Canyon Petroglyph Site would provide visitors with freedom of choice in how to visit the site. During high-use periods, all visitors would be required to join a guided tour, which would have major, long-term impacts on spontaneous and unconfined recreation use at times but also would decrease crowding and noise. Allowing visitors permitted, self-guided access to the Sloan Canyon Petroglyph Site during low-use periods would maintain limited opportunities for unconfined recreation use of the site but would still decrease crowding and noise at the site by controlling permit numbers.

Allowing no more than one group in the Sloan Canyon Petroglyph Site at one time also would reduce crowding and user conflicts. Limiting the size of guided tours at the Sloan Canyon Petroglyph Site would mean that the maximum number of people on guided tours would be 20 people; as many as 25 people from self-guided tours would be allowed at the site during low-use periods, or 35 people at one time from organized groups. The maximum number of people in the Sloan Canyon Petroglyph Site at any one time would be 60 people. Issuing a maximum of 25 self-guided permits per hour could mean that some visitors would have to wait before being issued a permit. Requiring organized groups of between 6 and 35 people to obtain a use authorization and be accompanied by a guide would maintain opportunities for group visitation in Sloan Canyon and decrease crowding and noise. Again, however, it would decrease the opportunity for spontaneous and unconfined recreation use.

Limiting visitor use of the Sloan Canyon Petroglyph Site to the canyon bottom and a limited number of designated trails would decrease impacts to cultural and natural resources from inappropriate use but also could maintain some opportunities to view and photograph cultural resources on the canyon walls.

Designating and constructing an alternate trail from the north to avoid the rockfall and another from the south at Hidden Valley to avoid the wildlife water guzzler would maintain existing opportunities for primitive and unconfined recreation. These actions also would provide an alternate means of access to the Sloan Canyon Petroglyph Site for visitors who are unable to climb over the rockfall. It also would reduce crowding and congestion in the Sloan Canyon Petroglyph Site because many visitors would access the canyon on the trail routed around the site.

Controlling access to the canyon by using the visitor center at the north entrance, ongoing canyon patrols, and allowing access to the canyon from the south entrance by permit only would decrease opportunities for primitive and unconfined recreation by increasing the frequency of visitor contact with NCA staff and management controls. In addition, requiring rangers to issue permits to visitors entering Sloan Canyon from other access points would further increase management interaction with visitors. Requiring nonguided visitors to experience an interpretive presentation on appropriate visitor use and site etiquette would mean more management interaction but probably would add to the natural and cultural experience.

Locating limited amounts of signage within the canyon could increase information available to visitors, which could improve visitor knowledge of the area, reduce incidents of visitors getting lost, and minimize inappropriate recreation use. Placing access signage in different areas of the canyon limiting access to guided or permitted use would decrease incidents of recreationists visiting the canyon without a guide but also would decrease naturalness and visitors' sense of primitive, unconfined recreation.

Recreation

Designating and constructing trails from Hidden Valley and the visitor center to the Sloan Canyon Petroglyph Site would enhance opportunities to view cultural resources and increase visitor satisfaction. Dispersing visitor use that is causing social trails would enhance primitive and unconfined recreation opportunities by

controlling the total amount of trails. Blocking new social trails not desired for designation or use would decrease opportunities for primitive and unconfined recreation through the addition of temporary improvements but would increase opportunities for trail-based recreation by responding to user demand. Constructing trails within the Wilderness could decrease opportunities for primitive, unconfined recreation. Allowing minimal permanent improvements for the purposes of resource protection and enhancement of wilderness values could decrease opportunities for primitive and unconfined recreation but could increase the quality of Wilderness recreation by providing improved access, increased information, and enhanced resource protection. Restoring Wilderness disturbances according to a minimum requirement/minimum tool analysis for each project could maintain opportunities for primitive and unconfined recreation but, depending on restoration actions, could decrease the quality of primitive and unconfined recreation during restoration efforts.

Allowing campfires in the Wilderness—in fire pans or blankets, and requiring all fire waste products to be packed out—could minimize multiple fire rings, trash, and human-caused wildfire and would increase visitors' sense of a primitive experience, although it does place a logistical burden on the user.

Allowing bouldering and rock climbing, without permanent anchors, in the Wilderness, outside of sensitive resource areas, would provide recreational opportunities; however, it could result in conflict with other recreation activities, such as viewing cultural sites, wildlife watching, and hunting if climbing took place in or around high-demand or sensitive resources. Allowing dogs, on leash, and requiring removal of animal feces would maintain a form of existing opportunities for recreationists with dogs, while increasing visitor responsibilities. Placing dog waste disposal centers at trailheads just outside the Wilderness would enhance recreation opportunities by minimizing the amount of dog waste in the Wilderness and encouraging appropriate recreation behavior.

Allowing primitive and dispersed camping in the Wilderness, outside the Sloan Canyon Petroglyph Site and north canyon access, would maintain opportunities for camping or other overnight uses in the majority of the Wilderness.

Signage

Installing trailhead signage outside the Wilderness at major access routes entering the area, consisting of low-profile, natural-color signs that display route information, maps, and visitor information would increase opportunities for unconfined recreation both on and off trails by increasing visitor information on ways to enter and experience the area. Primitive and unconfined recreation experiences would be slightly decreased by increased infrastructure at trailheads. Installing visitor registers would help establish the visitor use baseline, could be used to monitor changes to that baseline, and would provide a mechanism for receiving feedback on the NCA's visitor experience.

Soundscape

As in Alternative B, maintaining natural soundscapes at or below baseline ambient noise levels would maintain existing opportunities for primitive and unconfined recreation.

Disturbance

Restoring vandalized and disturbed areas within the Wilderness, such as two-track roads, to natural conditions would increase the character of the Wilderness. Nonetheless, the restoration activities themselves could produce minor to moderate short-term impacts to the visitor experience by decreasing solitude due to the presence of the work crews and naturalness from the activity intrusion. The disturbances may have existed at the time of Wilderness designation or could occur in the future.

To Recreation from Cultural Resources (Alternative C)

As in Alternative B, allowing traditional use in the Sloan Canyon Petroglyph Site could cause minor, short-term decreases in available recreation opportunities when these activities take place. Assigning any cultural resource site or site type to the traditional or conservation use categories would produce a minor decrease in recreation opportunities associated with that site by restricting use of the resource for public viewing and appreciation. Assigning any cultural resource site or site type to the public use category would maintain or increase recreation opportunities to view and appreciate cultural resources.

To Recreation from Visual Resources (Alternative C)

Designating VRM classes as shown in Alternative C would accommodate more opportunities for developed recreation than Alternative B by designating slightly more VRM Class III areas where recreation facilities would be located. VRM Classes I and II would place stringent restrictions on the development of recreation facilities on approximately 86 percent of the NCA.

To Recreation from Interpretation (Alternative C)

Allowing the use of low-profile, unobtrusive media in high-use areas would decrease opportunities for primitive and dispersed recreation by adding management presence and infrastructure visible to recreationists. Any interpretive media available to visitors could enhance recreation experiences by increasing visitor knowledge and appreciation of NCA resources.

To Recreation from Facilities (Alternative C)

Constructing a visitor center near the NCA boundary at the north entrance to Sloan Canyon would have major, long-term impacts by increasing the degree of management presence and infrastructure near the canyon. Construction and presence of the visitor center could increase and enhance opportunities for developed recreation in and around the Sloan Canyon Petroglyph Site by providing visitor facilities, controlling visitor access, and providing visitor information. Constructing small gravel parking lots with

interpretive kiosks and vault toilets at Hidden Valley Trailhead, Dutchman Pass Trailhead, and Quo Vadis Trailhead would decrease primitive visitor experiences by increasing management and infrastructure presence but also could enhance developed recreation opportunities by providing desired facilities and information and accommodating additional visitation and activities such as equestrian use, mountain biking, and hiking.

As in Alternative B, providing offsite information in existing facilities throughout the City of Henderson would increase opportunities for residents and visitors to learn about the NCA and its recreation opportunities.

To Recreation from Lands and Realty (Alternative C)

As in Alternative B, considering applications for new and amended ROWs that benefit the NCA could increase and enhance recreation opportunities if they supported recreation facilities, eliminated disturbances in recreation areas, or improved naturalness that is important to dispersed recreation.

Prohibiting commercial filming in the Sloan Canyon Petroglyph Site would eliminate potential conflicts between recreationists and film crews. Limiting filming in the remainder of the NCA to developed areas, restricting timing, prohibiting disturbance, and limiting the numbers of cars and people associated with each permit would minimize conflicts between recreationists and film crews.

To Recreation from Transportation (Alternative C)

Passage of the Sloan Canyon NCA Act closed all roads and routes in the NCA to public motorized vehicle use, so designating the Dutchman Pass Road as open to licensed vehicles would increase recreation opportunities by allowing access to an area of the NCA historically receiving the highest amounts of use. Designating the Quo Vadis Mine Road and Rattlesnake Canyon Road as open to vehicles also would increase access to the eastern portion of the NCA.

To Recreation from Vegetation Management (Alternative C)

As in the No Action alternative, restoring surface disturbances and striving for optimum species diversity would have a moderate, long-term beneficial impact to recreation by increasing the naturalness of the NCA and enhancing the perception of recreating in an environment free from human disturbance.

Focusing restoration efforts in the nonmotorized and roaded natural portions of the NCA would enhance dispersed and developed recreation opportunities by improving naturalness in the majority of the NCA. Requiring collection of vegetation to meet the objectives of the NCA would eliminate opportunities for recreational collection of plants and seeds in the NCA.

To Recreation from Wildlife Management (Alternative C)

Limiting the designation and construction of trails, facilities, and ROWs within known lambing areas could restrict the location and extent of trail-based recreation opportunities. Avoiding trail construction in areas of known bighorn sheep movement between the North and South McCullough Ranges would not affect the location and extent of trail-based recreation opportunities. Seasonal restrictions on trail construction could decrease recreation opportunities or decrease visitor satisfaction by delaying the need for trail construction or repair. Employing small area or seasonal closures to protect wildlife species during critical life periods could maintain or slightly reduce opportunities for recreation, depending on the nature of the closure.

Allowing casual collection of reptiles outside the Wilderness would maintain most existing opportunities for recreational collection of reptiles in the NCA. Educating visitors to be sensitive to raptor nesting could enhance recreation opportunities by providing increased visitor information.

To Recreation from Livestock Grazing (Alternative C)

As in Alternative B, eliminating the construction of additional range improvements for grazing purposes would maintain existing opportunities for primitive, dispersed recreation.

4.3.5 Impacts to Recreation Under Alternative D: Emphasize Developed Uses

To Recreation from Recreation (Alternative D)

Dividing the NCA into MEAs as shown in Figure 2.27 would slightly decrease the area designated for primitive and nonmotorized uses to about 59 percent of the NCA. Opportunities for more developed opportunities and motorized recreation would be increased by designating approximately 38 percent of the NCA for roaded natural and developed opportunities. Opportunities for the most developed types of recreation would be increased by designating about 2.5 percent of the NCA for developed recreation. Conflicts between user types could increase in areas where higher amounts of use are expected to occur.

Hiking/Equestrian Use/Mountain Biking

As in Alternative C, there would be decreased opportunities for primitive cross-country hiking by requiring that visitors stay on trails in approximately 32% of the NCA. Allowing equestrian use, either on trails (approximately 31% of NCA) or in areas where cross-country riding is allowed (approximately 50% of NCA) ensures that horse enthusiasts will be able to enjoy the NCA. Allowing mountain biking on several multiple use trails and on all designated roads and OHV routes would provide biking opportunities and minimize conflicts.

Trails

Because there currently are no trails within the NCA, designing a trail system for the widest possible range of recreation experiences would cause a major increase in all types of recreation. Development of this type of trail system also would disperse recreation uses to more of the NCA and could be designed to reduce user conflicts and minimize impacts to sensitive natural and cultural resources. Construction of additional trails would result in increased opportunities for trail-based recreation over the long term. Conflicts among trail users would be reduced by the ability to add new trails, and the quality of recreation experiences could be diversified and expanded. Trail impacts to cultural and natural resources would be considered before designation and construction occurs.

Restoring unauthorized trails could cause a minor decrease in recreation opportunities but would maintain or improve resource conditions and limit inappropriate uses. Evaluating any unauthorized trails for inclusion in the trail system could increase available recreation opportunities and reduce impacts to naturalness by adding trails or decrease opportunities if trails were closed.

OHV

Alternative D allows OHV use on designated roads and routes within the NCA, outside the Wilderness. Approximately 10 miles of routes are designated route near the Quo Vadis Trailhead. Because of the relatively short length of the designated routes, this action would provide minor opportunities for OHV recreation; however, it could moderately increase conflicts with other users.

Dogs/Other Recreational Use

Allowing dogs off leash in most of the NCA could have major impacts through conflicts with other users. Prohibiting dogs in sensitive resource areas would have a minor impact on dog walkers. Requiring removal of animal feces would have a major beneficial impact on the quality of the NCA, although it will increase responsibilities of dog owners. Allowing use of low-profile, natural-color, fixed anchors throughout the NCA will increase bouldering and traditional rock climbing opportunities. Rock climbing could conflict with other recreational activities, such as hunting.

Allowing rock hounding in the NCA, outside of the Sloan Canyon Petroglyph Site, would maintain existing opportunities for causal, recreational collection of geologic material but would protect sensitive resources and reduce user conflicts within the Sloan Canyon Petroglyph Site. Closing the NCA to geocaching and shooting (other than permitted hunting) would have moderate impact on some users by eliminating these types of recreation. Closures could reduce recreation conflicts and help preserve cultural and natural resources but could result in decreased visitor satisfaction.

Nightime Use

Allowing primitive and dispersed camping in designated areas of the NCA outside the Sloan Canyon Petroglyph Site and north access area would provide opportunities for camping or other overnight uses on 30,121 acres (approximately 62 percent) of the NCA. Providing a primitive campground at the Hidden Valley contact station would provide a camping opportunity for visitors who are not able to access the interior of the NCA for primitive camping.

In the Wilderness, allowing campfires—in fire pans or blankets, and requiring all fire waste products to be packed out—would minimize multiple fire rings, trash, and human-caused wildfire would minimize multiple fire rings, trash, and human-caused wildfire and increase visitors' sense of a primitive experience, although it does place a logistical burden on the user.

In the NCA, allowing campfires in BLM-authorized fire rings at campsites would maintain opportunities for campfires but could also maintain or increase instances of illegal dumping of trash and human-caused wildfire.

Special Recreation Permits

As in Alternatives B and C, requiring that special recreation permits be obtained could decrease opportunities for spontaneous recreation. Issuing competitive or vending SRPs, outside the Wilderness, would provide continued opportunities for event organizers or vendors to provide services.

Requiring organized groups to obtain permits, outside the Sloan Canyon Petroglyph Site, could maintain or cause a minor decrease in opportunities for organized recreation, but managing these groups probably would reduce recreation conflicts and resource impacts. Allowing outfitters and guides in the NCA would increase opportunities for professionally led recreational experiences, but the potential exists for minor impacts from loss in solitude and conflicts between user groups.

To Recreation from the North McCullough Wilderness Area (Alternative D)

Visitation

As in Alternatives B and C, limiting visitor numbers to minimize adverse impacts to wilderness characteristics would maintain or enhance existing primitive and unconfined recreation experiences in the Wilderness, but limits could have a moderate impact on users if they were restricted from accessing specified areas.

Sloan Canyon Petroglyph Site

Choosing to allow unlimited self-guided visitation to the Sloan Canyon Petroglyph Site and having no restrictions on group numbers or sizes could increase crowding and conflicts at the site. There would be no restrictions on the maximum number of people in the area at one time. This approach would provide the maximum amount of primitive and unconfined recreation, but satisfaction would not increase for visitors

who desire guided tours. Requiring organized groups of between 6 and 35 people to obtain a use authorization and be accompanied by a guide would allow group visitation in Sloan Canyon and could decrease crowding and noise by managing when large-group visitation occurs. Allowing visitors to access the wash slopes would maintain or increase opportunities to view and photograph cultural resources on the canyon walls but would degrade resources.

Controlling access to Sloan Canyon by using the visitor center at the north entrance, the contact station at the south entrance, and ongoing canyon patrols would decrease opportunities for primitive and unconfined recreation by increasing the frequency of visitor contact with NCA staff. Use of the Sloan Canyon Petroglyph Site would be limited to the operational hours of the visitor's center.

Closing the Sloan Canyon Petroglyph Site to rock climbing and dogs would eliminate the possibility of conflicts with other visitors viewing the cultural resources in the confined, high-use, sensitive canyon area.

Providing an interpretive presentation, informational kiosks outside the Wilderness, and signage within Sloan Canyon could increase information available to visitors, which could improve visitor knowledge of the area, reduce incidents of visitors getting lost, and minimize inappropriate recreation use.

Recreation

Allowing use of the Sloan Canyon wash, constructing trails to avoid the rockfall and the wildlife water guzzler, and placing a ladder or constructed rock stairway over the rockfall area would cause moderate decreases in opportunities for primitive, unconfined recreation. The improved trails would provide increased access to the Sloan Canyon Petroglyph Site on multiple routes and accommodate visitors who are unable to climb over the rockfall. The improvements would increase safety for visitors using the Sloan Canyon wash to access the site. The alternate trail from the north also would reduce crowding and congestion in the Sloan Canyon Petroglyph Site because some visitors would access the canyon on the trail routed around the site.

As in Alternative C, restoring social trails that are not needed for future use would enhance primitive and unconfined recreation opportunities but would decrease the amount of trail hiking opportunities. Constructing trails within the Wilderness and allowing permanent improvements for the purposes of resource protection and enhancement of wilderness values, such as erosion protection, could produce a moderate decrease in the opportunities for primitive, unconfined recreation. The improvements could increase the quality of Wilderness recreation by providing improved access, increased information, and enhanced resource protection. Restoring disturbances in the Wilderness would maintain opportunities for primitive and unconfined recreation but, depending on restoration actions, could impact the quality of primitive and unconfined recreation during restoration.

Allowing campfires in the Wilderness—in fire pans or blankets, and requiring all fire waste products to be packed out—would minimize multiple fire rings, trash, and human-caused wildfire but could decrease visitors' sense of primitive and unconfined recreation by increasing regulations and visitor responsibilities.

Allowing bouldering and traditional rock climbing using low-profile, natural-color, fixed anchors in the Wilderness (no power drills for installation of anchors) would maintain existing opportunities for climbing. Allowing dogs off leash in the Wilderness (outside the Sloan Canyon Petroglyph Site, the north access area, and sensitive resource areas) and requiring removal of animal/dog waste would maintain existing opportunities, with a small increase in visitor responsibilities. Placing dog waste disposal centers would enhance recreation opportunities by minimizing the amount of dog waste in the Wilderness and encouraging appropriate recreation behavior.

As in Alternatives B and C, issuing special recreation permits could decrease opportunities for spontaneous recreation. Requiring groups to obtain SRPs, outside the Sloan Canyon Petroglyph Site, could maintain or cause a minor decrease in opportunities for organized recreation, but managing these groups probably would reduce recreation conflicts and resource impacts. Allowing outfitters and guides in the NCA would increase opportunities for professionally led recreational experiences, but the potential exists for minor impacts from loss in solitude and conflicts between user groups.

Signage

Installing trailhead signage outside the Wilderness at major access routes—consisting of low-profile, natural-color signs that display route information, maps, and visitor information—would increase opportunities for unconfined recreation both on and off trails by increasing visitor information on ways to enter and experience the area. Primitive and unconfined recreation experiences would be slightly decreased by increased infrastructure at trailheads.

Installing visitor registers would help establish the visitor use baseline, could be used to monitor changes to that baseline, and would provide a mechanism for receiving feedback on the NCA's visitor experience.

Soundscape

As in Alternatives B and C, maintaining natural soundscapes at or below baseline ambient noise levels would maintain existing opportunities for primitive and unconfined recreation.

Disturbance

As in the No Action alternative (Alternative A), restoring vandalized and disturbed areas within the Wilderness, such as two-track roads, to natural conditions would increase the character of the Wilderness. Nonetheless, the restoration activities themselves could produce minor to moderate short-term impacts to the visitor experience by decreasing solitude due to the presence of the work crews and naturalness from the activity intrusion. The disturbances may have existed at the time of Wilderness designation or could occur in the future.

To Recreation from Cultural Resources (Alternative D)

Allowing traditional use in the Sloan Canyon Petroglyph Site could cause minor, short-term decreases in available recreation opportunities when these activities take place. Assigning any cultural resource site or site type to the traditional or conservation use categories would produce a minor decrease in recreation opportunities associated with that site by restricting use of the resource for public viewing and appreciation. Assigning any cultural resource site or site type to the public use category would maintain or increase recreation opportunities to view and appreciate cultural resources.

To Recreation from Visual Resources (Alternative D)

Designating VRM classes as shown in Figure 2.33 would accommodate the most opportunities for developed recreation in comparison with other alternatives by designating the most VRM Class III areas where recreation facilities could be located. VRM Class I and II designations place stringent restrictions on development of recreation facilities on approximately 85 percent of the NCA.

To Recreation from Interpretation (Alternative D)

Providing visible interpretive media designed to draw attention to identified resources would decrease opportunities for primitive and dispersed recreation by adding management presence and visible infrastructure. Any interpretive media available to visitors could enhance recreation experiences by increasing visitor knowledge and appreciation of NCA resources.

To Recreation from Facilities (Alternative D)

Constructing a visitor center near the NCA boundary at the north entrance to Sloan Canyon would have a major, long-term impact by decreasing primitive and dispersed use by increasing the degree of management presence and infrastructure near the canyon. The presence of this facility would attract a majority of NCA visitors. Consequently, opportunities for developed recreation in the immediate area and around the Sloan Canyon Petroglyph Site could increase, as would the need for a larger management and interpretive presence.

Constructing a visitor contact station with associated infrastructure in Hidden Valley would have a moderate, long-term impact on the primitive visitor experience by increasing management and infrastructure presence. The presence of this facility would attract people to this rarely visited portion of the NCA. However, the facility would enhance developed recreation opportunities. Construction of a developed, dry campground would provide new opportunities for developed camping that are not provided in other alternatives.

Constructing a larger gravel parking lot, equestrian facilities, and bathrooms with water and power at Dutchman Pass Trailhead would decrease primitive visitor experiences by increasing management and infrastructure presence but also could enhance developed recreation opportunities by providing desired facilities and information. Constructing such facilities could attract recreation visitation and would accommodate demand for developed recreation.

Constructing a larger gravel parking lot with an interpretive kiosk, equestrian facilities, and vault toilet at the Quo Vadis Trailhead would provide increased opportunities for trail-based recreation activities such as equestrian use, mountain biking, OHV use, and hiking. This facility would accommodate higher levels of demand for recreation use of the area.

Constructing a small gravel parking lot with an interpretive kiosk and vault toilet at the Sutor Hills Trailhead would enhance opportunities for dispersed and trail-based activities in the western portion of the NCA.

Providing offsite information in existing facilities throughout the City of Henderson, Las Vegas, and Boulder City would further increase opportunities for residents and visitors to learn about the NCA and its recreation opportunities.

To Recreation from Lands and Realty (Alternative D)

As in Alternatives B and C, considering applications for new and amended ROWs that benefit the NCA could increase and enhance recreation opportunities if they supported recreation facilities, eliminated disturbances in recreation areas, or improved naturalness that is important to dispersed recreation.

Prohibiting commercial filming in the Sloan Canyon Petroglyph Site would eliminate potential conflicts between recreations and film crews. Limiting filming in the remainder of the NCA to developed areas, restricting timing, prohibiting disturbance, and limiting the numbers of cars and people associated with each permit would minimize conflicts between recreationists and film crews. The larger crew size in this alternative could have minor impacts on visitors' experience.

To Recreation from Transportation (Alternative D)

Passage of the Sloan Canyon NCA Act closed all roads and routes in the NCA to public motorized vehicle use, so designating the Dutchman Pass Road as open to licensed vehicles would increase recreation opportunities by allowing access to an area of the NCA historically receiving the highest amounts of use. Designating the Quo Vadis Mine Road and Rattlesnake Canyon Road as open to vehicles also would increase access to the eastern portion of the NCA. Designating the East-West Power Line Road as open would increase recreational opportunities in the northern portion of the NCA. Designating the Sutor Hills Road as open to vehicles would provide access to hiking areas on the western edge of the NCA.

To Recreation from Vegetation Management (Alternative D)

As in all alternatives, restoring surface disturbances and striving for optimum species diversity would have a moderate, long-term beneficial impact to recreation by increasing the naturalness of the NCA and enhancing the perception of recreating in an environment free from human disturbance.

Focusing restoration efforts on primitive and nonmotorized portions of the NCA would enhance dispersed recreation opportunities by improving naturalness in more pristine areas. Allowing casual collection of vegetation, outside the Wilderness, would maintain most existing opportunities for recreational collection of plants and seeds in the NCA.

To Recreation from Wildlife Management (Alternative D)

Allowing casual collection of reptiles throughout the NCA would maintain most existing opportunities for recreational collection of reptiles in the NCA. Allowing commercial collection outside the Wilderness could reduce opportunities for wildlife viewing.

Closing trails in response to critical threats to wildlife species, using seasonal or site closures, would maintain existing opportunities for recreation.

To Recreation from Livestock Grazing (Alternative D)

As in Alternatives B and C, eliminating new construction of range improvements for grazing purposes would maintain existing opportunities for primitive, dispersed recreation.

4.4 IMPACTS TO THE NORTH MCCULLOUGH WILDERNESS AREA

4.4.1 Impacts to Wilderness Under Common to All Alternatives

To Wilderness from Recreation (Common to All Alternatives)

Issuing SRPs for activities within the Wilderness could increase opportunities for primitive and unconfined recreation but could decrease naturalness and opportunities for solitude by increasing the total amount of visitation.

To Wilderness from the North McCullough Wilderness Area (Common to All Alternatives)

Continuing to limit access to the North McCullough Slickrock Catchment #1 would maintain or enhance wilderness characteristics over the long term by increasing naturalness and solitude by limiting amounts of disturbance associated with vehicle travel and minimizing human presence for maintenance activities.

To Wilderness from Interpretation (Common to All Alternatives)

Development of an interpretive plan for the NCA could affect wilderness characteristics by interpreting wilderness resources. Any installation of temporary or permanent interpretive media within the Wilderness would decrease naturalness over the short term and long term. However, interpretive media located outside the Wilderness but focused on wilderness characteristics could provide long-term benefits by improving visitor knowledge of wilderness and wilderness activities.

To Wilderness from Wildlife Management (Common to All Alternatives)

Allowing construction and maintenance of wildlife waters within the Wilderness according to the memorandum of understanding could cause minor to moderate decreases in naturalness, solitude, and primitive and unconfined recreation during maintenance and construction operations. This impact would occur over the long term because of the presence of permanent improvements.

Allowing temporary animal damage control activities would cause moderate short-term decreases in naturalness, solitude, and opportunities for primitive and unconfined recreation by increasing the numbers of people within the Wilderness and possibly increasing temporary improvements within the Wilderness. Repairing resource damage caused by wildlife could result in minor long-term increases in naturalness by reestablishing native species or reducing non-native species.

4.4.2 Impacts to Wilderness Under Alternative A: No Action

To Wilderness from Recreation (No Action)

Allowing hiking without restrictions throughout the NCA could cause minor decreases in naturalness in the Wilderness by allowing recreationists to access the Wilderness from multiple points. If social trails developed, sensitive resources could be impacted by recreation use in inappropriate areas. Allowing unrestricted hiking and equestrian use would naturally gravitate to the most popular destinations within the Wilderness, which could lead to crowding at those locations and resulting loss of solitude.

Designating and constructing trails on a case-by-case basis, using site-specific analysis to avoid sensitive resources, would maintain or decrease long-term naturalness, solitude, and opportunities for primitive and unconfined recreation; however, such trails could provide resource protection. Restoring any trail established without BLM approval would maintain or increase naturalness within the Wilderness by removing permanent improvements that do not protect or enhance wilderness characteristics. A minimum requirement/minimum tool analysis would be complete prior to the start of any activities to protect resources and wilderness values.

Continuing to issue SRPs according to policy, would maintain existing naturalness, solitude, and opportunities for primitive and unconfined recreation because all permitees would be required to operate in a manner consistent with wilderness protection. Requiring organized groups to obtain SRPs on a case-by-case basis could have minor opportunity impacts by increasing steps necessary for a group to participate in wilderness recreation and could displace some users or user groups. Naturalness as well solitude for other Wilderness visitors could be improved by directing large-group recreation to appropriate use areas.

To Wilderness from the North McCullough Wilderness Area (No Action)

Sloan Canyon Petroglyph Site Management

Allowing use of the Sloan Canyon Petroglyph Site to continue with no restrictions on the amount, timing, or manner of visitation would have moderate long-term impacts on naturalness because users could access sensitive cultural and natural resource areas on the canyon walls and rim potentially resulting in erosion, damage to artifacts, and disturbance to vegetation. Opportunities for primitive and unconfined recreation would be maintained, however use restrictions may have to be applied in the future if monitoring indicates that resources are degrading. Solitude would decrease over the short and long term as visitation increases within the canyon.

Recreation

Under Alternative A, no trails are designated and few would be so in the future. Designating and maintaining trails on a case-by-case basis would have a minor impact on naturalness, solitude, and opportunities for primitive and unconfined recreation over the short and long term, however the trails may protect resources. At current use levels, there is a limited demand for wilderness opportunities outside the Sloan Canyon Petroglyph Site and impacts from social trails are not expected, although this could change as visitation increases. Opportunities for primitive and unconfined recreation would be maintained because recreation use in the Wilderness is not trail dependent.

Continuing to allow camping and campfires in the Wilderness, outside the area closed under the *Las Vegas RMP*, would maintain primitive, unconfined recreational opportunities but could have minor, long-term impacts by increasing the risk of site devegetation, inappropriate development of multiple fire rings, illegal dumping of trash, and human-caused wildfire.

Allowing rock climbing in the Wilderness is not expected to impacts to wilderness characteristics, especially because the area not particularly conducive to climbing. Allowing geocaches in the Wilderness could cause minor decreases in short-term and long-term naturalness because geocaching could result in the establishment of unwanted trails, devegetation, soil compaction, erosion, trash accumulation, and wildlife disturbance from human presence near and leading to geocache locations. In addition, the placement of geocaches would result in semipermanent or permanent human presence in the Wilderness.

Allowing dogs in the Wilderness could decrease naturalness, solitude, and opportunities for primitive and unconfined recreation by allowing dogs off leash throughout the area. Disturbance from human presence to wildlife and increases in dog waste could decrease naturalness. Conflicts with other recreationists could decrease opportunities for solitude and primitive and unconfined recreation. Allowing dogs also could maintain or increase opportunities for primitive and unconfined recreation by providing an area where recreationists could hike with dogs.

Existing levels of naturalness, solitude, and opportunities for primitive and unconfined recreation would be minimally impacted if all proposed permanent improvements were subject to case-by-case review and development were limited to that necessary for resource protection or protection of wilderness users.

Signage

Installing trailhead access signage on a case-by-case basis could maintain existing opportunities for primitive, unconfined recreation by limiting the number of developed Wilderness access points. However, limiting access signage could have minor impacts on trail-based opportunities because visitors might not know how to enter and experience the area.

Installing wilderness boundary signage, trailhead signage and wilderness visitor registers would by improve awareness of the Wilderness boundary, Wilderness values and rules. Naturalness would be maintained or slightly decreased by the presence of signage adjacent to the Wilderness boundary.

Soundscape

Under the No Action alternative, noise would remain unmonitored and unmanaged, which could decrease naturalness within the Wilderness by allowing unnatural noise to increase.

Disturbance

Restoring vandalized and disturbed areas within the Wilderness, such as two-track roads, to natural conditions would increase the character of the Wilderness and produce a minor impact to the visitor experience. If restoration of all known disturbances, including social trails, were completed within three years of the Record of Decision, naturalness would be moderately increased. Short-term naturalness, solitude, and primitive and unconfined recreation would experience minor decreases by allowing the use of intrusive management presence for restoration efforts.

Continuing to manage noxious or invasive weeds according to existing policy would minimize the number of noxious or invasive weed vectors entering the Wilderness or surrounding areas.

To Wilderness from Cultural Resources (No Action)

Wilderness characteristics would be maintained when cultural resources are managed under Section 106 and appropriate guidance.

To Wilderness from Visual Resources (No Action)

Managing the Wilderness as VRM Class I would maintain or improve naturalness over the long term by maintaining the scenic quality of the Wilderness and maintaining current levels of viewer sensitivity to disturbance or human presence.

To Wilderness from Vegetation Management (No Action)

Rehabilitating areas of vegetation disturbance, where feasible, using native species would maintain or increase naturalness over the long term by restoring natural vegetation condition. Short-term naturalness, solitude, and opportunities for primitive and unconfined recreation could be temporarily decreased during restoration activities. Allowing causal collection of vegetation in the Wilderness would result in minor decreases in naturalness from removal of vegetation.

To Wilderness from Livestock Grazing (No Action)

Prohibiting construction of range improvements in the Wilderness would maintain existing levels of naturalness, solitude, and existing opportunities for primitive and unconfined recreation.

4.4.3 Impacts to Wilderness Under Alternative B: Emphasize Natural Character

To Wilderness from Recreation (Alternative B)

Allowing hiking without restrictions throughout the NCA could cause moderate decreases in naturalness in the Wilderness by allowing recreationists to access the Wilderness from multiple points. Opportunities for solitude and primitive and unconfined recreation would be maintained. Proliferation of social trails could impact sensitive resources by focusing recreation use in inappropriate areas. Choosing not to designate hiking trails in the Wilderness would maintain existing levels of naturalness by avoiding construction of new trails and associated improvements. Restoring any trail established without BLM approval would maintain or increase naturalness within the Wilderness by removing permanent improvements that do not protect or enhance wilderness characteristics.

Designating and constructing trails on a case-by-case basis, using site-specific analysis to avoid sensitive resources, would maintain or decrease long-term naturalness, solitude, and opportunities for primitive and unconfined recreation; however, such trails could provide resource protection. Restoring any trail established without BLM approval would maintain or increase naturalness within the Wilderness by removing permanent improvements that do not protect or enhance wilderness characteristics.

Closing the Wilderness to horses, camping, rock climbing, and recreational target shooting would eliminate these uses but could increase naturalness and solitude. Prohibiting geocaching would increase naturalness by eliminating impacts from new, unwanted trails; devegetation; soil compaction; erosion; and wildlife disturbance from human presence near and leading to geocache locations. Prohibiting dogs in the Wilderness would increase naturalness by eliminating the possibility of wildlife harassment, conflicts with other recreationists, and presence of dog waste. Prohibiting dogs in the Wilderness also would cause moderate decreases in opportunities for primitive and unconfined recreation.

As in the No Action alternative (Alternative A), continuing to issue SRPs according to policy would maintain existing naturalness, solitude, and opportunities for primitive and unconfined recreation because all permitees would be required to operate in a manner consistent with wilderness protection. Requiring organized groups to obtain SRPs on a case-by-case basis could have minor opportunity impacts by increasing the steps necessary for a group to participate in wilderness recreation, which could displace some users or user groups. Naturalness as well as solitude for other Wilderness visitors could be improved by directing large-group recreation use to areas preferred by the BLM.

To Wilderness from the North McCullough Wilderness Area (Alternative B)

Preparing a Wilderness Management Plan would help ensure that management activities consider and protect wilderness characteristics. Limiting visitation within the Wilderness to a number that does not cause adverse impacts to wilderness characteristics (e.g., social trails, crowding, vegetation damage, soil compaction, cultural resource impacts, increased permanent improvements, impacts on wildlife values) would maintain or produce minor decreases in naturalness, solitude, and opportunities for primitive and unconfined recreation. Visitation management would be improved by requesting visitors to register prior to wilderness entry.

Sloan Canyon Petroglyph Site

Requiring all visitors to join a guided tour when visiting the canyon would have a moderate impact on opportunities for primitive and unconfined recreation by reducing ways in which recreationists could experience this portion of the Wilderness. Naturalness would be maintained or increased over the long term because guided groups would be less likely to cause damage to sensitive cultural or natural resources. Moderate decreases in solitude would result from requiring all visitors to travel to Sloan Canyon in groups as large as 12. Requiring organized groups of between 6 and 20 people who want to visit the Sloan Canyon Petroglyph Site to obtain use authorization and be accompanied by a guide would maintain the naturalness of the area but would decrease opportunities for primitive and unconfined recreation by increasing visitor contact with management and directed activity. Solitude would not be available within Sloan Canyon for visitors who are not in groups because unguided dispersed visitation would not be allowed. Moderate decreases in solitude could be expected when organized groups visit the site because as many as 20 people at one time could be in the area.

Controlling access to the Sloan Canyon Petroglyph Site by using the contact station and ranger/staff patrols would have a major impact on visitors' sense of unconfined recreation in the canyon by increasing management presence in the canyon. Limiting use to the canyon bottom would decrease impacts to cultural and natural resources from inappropriate visitor behavior but could have minor impacts on the experience because visitors could not get close to the all of the petroglyphs on the canyon walls.

Limiting visitor use of Sloan Canyon to the same hours of operation as the contact station could eliminate visitation during early mornings and late evenings, when demand for access could be high to avoid high summer temperatures.

Choosing not to locate any signage or improvements such as ladders or stairs within Sloan Canyon wash would maintain existing levels of naturalness and opportunities for primitive and unconfined recreation. However, placing signage outside Sloan Canyon to control dispersed access to the canyon would decrease naturalness in the area by adding improvements inside the Wilderness.

Recreation

Not designating of trails within the Wilderness would maintain existing levels of naturalness over the short term because existing uses are not trail dependent. Naturalness could be moderately impacted in easily accessible areas over the long term if use increased at rates similar to Clark County population growth. Opportunities for primitive and unconfined recreation would be maintained because recreation use in the Wilderness is not trail dependent.

Blocking new social trails would increase naturalness by eliminating unwanted disturbances, and using natural materials to block the trails would minimize management presence and maintain naturalness. Restoring visible portions of social trails with native vegetation and using nonmechanized tools could increase naturalness by reducing ongoing use of unwanted social trails and minimizing impacts associated with management presence for restoration. Solitude and opportunities for primitive and unconfined recreation also would be maintained or increased over the long term as natural conditions were restored.

Prohibiting camping, campfires, and overnight use in the Wilderness would have minor impacts by eliminating surface disturbance and trash associated with these activities, but primitive and unconfined recreation would be decreased by prohibiting these existing opportunities.

Signage and Improvements

Installing wilderness boundary signage on a case-by-case basis on all known and potential wilderness access routes and visitor use areas near the boundary would maintain or increase solitude and opportunities for primitive and unconfined recreation over the long term by improving awareness of the Wilderness boundary location. Naturalness would be maintained or slightly decreased by the presence of signage adjacent to the Wilderness boundary. However, choosing not to provide trailhead signage could produce a minor decrease in naturalness and opportunities for primitive and unconfined recreation. Recreationists would have to seek other sources of information on wilderness characteristics and regulations, which could cause wilderness impacts from inappropriate use.

Prohibiting permanent improvements within the Wilderness could maintain or increase naturalness, solitude, and primitive and unconfined recreation by maintaining a wilderness environment free from installations. However, prohibiting these improvements also could produce a minor decrease in naturalness over the long term by limiting the ability to install improvements where they would promote and protect wilderness characteristics.

Establishing baseline noise levels through monitoring could maintain naturalness, solitude, and primitive and unconfined recreation within the Wilderness by limiting amounts of unnatural noise.

Disturbance

Restoration of disturbances, including vandalism and illegal dumping, within the Wilderness within three years of the RMP Record of Decision, using appropriate methodology, maintaining natural vegetation composition, and performing work during periods of low visitation would increase naturalness over the short term by ensuring that disturbances would be restored with methods that would provide less impact to solitude and opportunities for primitive and unconfined recreation. Long-term naturalness also would be improved through these restoration efforts. Solitude and opportunities for primitive and unconfined recreation also would be maintained or increased over the long term as natural conditions were restored.

To Wilderness from Sloan Canyon Petroglyph Site Management (Alternative B)

Removing or repairing vandalism and illegal dumping in the Sloan Canyon Petroglyph Site, using appropriate means, would increase naturalness and solitude by eliminating trash and vandalism.

To Wilderness from Cultural Resources (Alternative B)

Managing sites for traditional use could cause minor decreases in short-term naturalness, solitude, and primitive and unconfined recreation during excavation or other use. Managing cultural resources within the Sloan Canyon Petroglyph Site and other sites for conservation use would maintain existing naturalness, solitude, and opportunities for primitive and unconfined recreation at these sites. Managing cultural resources within the Sloan Canyon Petroglyph Site and at other sites for public use could decrease naturalness, solitude, and opportunities for primitive and unconfined recreation by increasing the amount of human presence, disturbance, and temporary improvements at or near the sites.

To Wilderness from Visual Resources (Alternative B)

As in the No Action alternative (Alternative A), managing the Wilderness as VRM Class I would maintain or improve naturalness over the long term by maintaining the scenic quality of the Wilderness and maintaining current levels of viewer sensitivity to disturbance or human presence. Impacts to Wilderness from Interpretation (Alternative B)

Minimizing the presence of interpretive media, including media used to orient visitors and provide resource protection, to be low profile would maintain or have minor, long-term impacts on naturalness by adding improvements within Wilderness. Opportunities for solitude and primitive and unconfined recreation would be maintained or enhanced by providing information critical to wilderness experiences.

To Wilderness from Vegetation Management (Alternative B)

Allowing restoration and rehabilitation of disturbed areas to be accomplished through natural processes could increase naturalness over the long term and would maintain solitude and naturalness in the short term by minimizing the amount of management activity within the Wilderness. However, minor decreases in naturalness could result from the spread of invasive species such as red brome. Focusing vegetation restoration in areas outside the Wilderness would maintain existing disturbances within the Wilderness, resulting in decreased naturalness over the long term.

Prohibiting collection of vegetation within the Wilderness would maintain or slightly increase existing levels of naturalness.

To Wilderness from Livestock Grazing (Alternative B)

As in the No Action alternative (Alternative A), prohibiting construction of range improvements in the Wilderness would maintain existing levels of naturalness, solitude, and opportunities for primitive and unconfined recreation.

Impacts to Wilderness from Geology and Soils (Alternative B)

Allowing nonintrusive geologic research in the Wilderness would maintain existing levels of naturalness over the long term but could cause short-term decreases in naturalness, solitude, and opportunities for primitive and unconfined recreation during research operations. Primitive and unconfined recreation opportunities would be maintained by continuing to allow recreational collection of geologic material.

4.4.4 Impacts to Wilderness Under Alternative C: Moderate Developed Use

To Wilderness from Recreation (Alternative C)

Requiring that hikers remain on designated trails in a 548-acre portion of the Wilderness surrounding Sloan Canyon would maintain or increase naturalness by limiting cross-country travel in an area of sensitive cultural resources and higher recreation use levels. In the immediate area, however, naturalness, solitude, and primitive and unconfined recreation would be decreased by constructing trails. Allowing cross-country hiking and equestrian use in the remaining 14,147 acres of the Wilderness would maintain or enhance naturalness, solitude, and opportunities for primitive and unconfined recreation, although visitors would naturally gravitate towards the most popular destinations and these areas may become crowded and solitude lost.

Designing a trail system in the Wilderness to accommodate hiking and equestrian use could maintain or decrease naturalness in the Wilderness by allowing surface disturbance for trail construction, but providing constructed trails where users might otherwise develop social trails would increase naturalness. Opportunities for trail-based primitive and unconfined recreation within the Wilderness would be increased where trails were constructed, but opportunities for off-trail primitive and unconfined recreation would be reduced.

Solitude could be decreased with trail construction as increased numbers of people visited the Wilderness using the trail system.

Allowing camping within the Wilderness, outside the Sloan Canyon Petroglyph Site, could result in minor to moderate decreases in naturalness over the short and long term from devegetation, soil compaction, litter, and multiple fire rings. Allowing campfires in user-provided fire pans or using fire blankets and requiring all fire waste products to be packed out could result in minor to moderate decreases in naturalness over the short and long term from fuel collection.

Allowing bouldering and rock climbing in the Wilderness, outside sensitive resource areas, could cause moderate increases in impacts to naturalness by increasing trails that approach climbing areas and increasing associated devegetation and soil compaction near the base of climbing routes. It also could increase primitive and unconfined recreation opportunities if suitable climbing routes were located and developed by climbers.

Allowing dogs, on lead, outside sensitive resource areas, could decrease naturalness, solitude, and opportunities for primitive and unconfined recreation. Impacts would be minimized by requiring animal feces to be immediately removed and packed out and maintaining dog waste disposal centers.

Prohibiting geocaching would increase naturalness by eliminating impacts from new, unwanted trails; devegetation; soil compaction; erosion; and wildlife disturbance from human presence near and leading to geocache locations.

As in Alternative A (No Action) and Alternative B, continuing to issue SRPs according to policy would maintain existing naturalness, solitude, and opportunities for primitive and unconfined recreation because all permitees would be required to operate in a manner consistent with wilderness protection. Allowing vending and competitive-use SRPs in the remainder of the NCA would not affect the Wilderness. Requiring organized groups to obtain SRPs on a case-by-case basis could have minor opportunity impacts by increasing steps necessary for a group to participate in wilderness recreation, which could displace some users or user groups. Naturalness as well solitude for other Wilderness visitors could be improved by directing large-group recreation use to areas preferred by the BLM.

To Wilderness from the North McCullough Wilderness Area (Alternative C)

Preparing a Wilderness Management Plan would help ensure that management activities consider and protect wilderness characteristics. Limiting visitation within the Wilderness to a number that does not cause adverse impacts to wilderness characteristics (e.g., social trails, crowding, vegetation damage, soil compaction, cultural resource impacts, increased permanent improvements, wildlife values) would maintain or produce minor decreases in naturalness, solitude, and opportunities for primitive and unconfined recreation. Managing visitation would be improved by requesting visitors to register prior to wilderness entry.

Sloan Canyon Petroglyph Site Management

Requiring visitors to join a guided tour during periods of high use would decrease opportunities for primitive and unconfined recreation by reducing the ways in which recreationists could experience this portion of the Wilderness. However, allowing permitted self-guided tours during low-use periods would maintain opportunities for primitive and unconfined recreation. Naturalness would be maintained or increased over the long term because management would be in contact with all visitors in various forms.

Establishing a tour limit of 20 people when visiting the Sloan Canyon Petroglyph Site would cause minor decreases in solitude by allowing more people in the canyon at one time than in Alternative B. Limiting the number of self-guided permits to 25 per hour would cause a minor to moderate decrease in levels of solitude within Sloan Canyon by allowing a larger total number of people at one time. Requiring organized groups of between 10 and 35 people who want to visit the Sloan Canyon Petroglyph Site to obtain use authorization and be accompanied by a guide would maintain the naturalness of the area but would decrease opportunities for primitive and unconfined recreation by increasing visitor contact with management and directed activity. Solitude would be decreased when organized groups visited the site because as many as 60 people at one time could be in the area. The total number of people in the canyon area at one time from the combination of guided and self-guided tours would cause moderate to major decreases in solitude. Naturalness would be maintained by ensuring appropriate visitor use in and around sensitive cultural and natural resources.

Controlling access to Sloan Canyon by using the visitor center at the north entrance, issuing permits, and using ongoing canyon patrols would moderately reduce opportunities for primitive and unconfined recreation by reducing ways in which recreationists could experience this portion of the Wilderness. Allowing patrols to issue permits to visitors accessing the canyon from other than the visitor center would maintain some opportunities for primitive and unconfined recreation.

Limiting visitor use of the Sloan Canyon Petroglyph Site to the wash bottom and designated trails would maintain or increase naturalness in the area by minimizing social trails and would increase opportunities for primitive and unconfined recreation. Constructing the Hidden Valley trailhead to the Sloan Canyon Petroglyph Site, designating the wash in the canyon bottom from the visitor center, and designating a hiking trail at the north entrance to the Sloan Canyon Petroglyph Site would decrease long-term naturalness by adding approximately 3.7 miles of permanent trail within the Wilderness. Routing the trail from the visitor center to the Sloan Canyon Petroglyph Site to avoid the rockfall area would help maintain naturalness within the canyon by avoiding placement of improvements. Primitive and unconfined recreation would be maintained, however, by continuing to allow visitors to use the wash and climb the rockfall. Minor increases in solitude within Sloan Canyon could be anticipated if the majority of users accessed the area on the new trail.

Prohibiting rock climbing in the Sloan Canyon Petroglyph Site would eliminate future impacts to wilderness characteristics in the canyon. Prohibiting dogs in the Sloan Canyon Petroglyph Site would increase

naturalness by eliminating the possibility of wildlife harassment, conflicts with other recreationists, and presence of dogs waste.

Allowing signage within Sloan Canyon for resource protection or to control dispersed access would decrease naturalness within the canyon by adding permanent improvements. However, naturalness might be enhanced by the signage because resource damage could be prevented. Opportunities for primitive and unconfined recreation could be enhanced by signage because canyon visitors would be better informed of appropriate site use.

Recreation

Blocking unwanted social trails by using signage or other non-native materials could decrease short-term naturalness. However, long-term naturalness, solitude, and opportunities for primitive and unconfined recreation would be increased or enhanced by restoration of these trails.

Signage and Improvements

Installing wilderness boundary signage on known wilderness access routes and visitor use areas near the boundary would maintain or increase solitude and opportunities for primitive and unconfined recreation over the long term by improving awareness of the Wilderness boundary location. Naturalness could undergo moderate decreases by placing more extensive signage adjacent to the Wilderness boundary. Installing trailhead signage outside of the Wilderness consisting of low-profile, natural-color signs that display route information, maps, and visitor information would increase naturalness and opportunities for primitive and unconfined recreation by improving visitor knowledge of wilderness characteristics and increasing user compliance with rules and regulations. Increased signage adjacent to the Wilderness boundary that is visible from the Wilderness could cause minor impacts to naturalness by adding permanent human improvements.

Allowing minimal improvements for the purposes of resource protection and enhancement of wilderness characteristics would maintain or increase levels of naturalness, solitude, and opportunities for primitive and unconfined recreation by allowing the use of some improvements to mitigate or prevent damage resulting from wilderness use. However, disallowing installation of improvements for human health and safety could lead to long-term decreases in naturalness by encouraging users to avoid dangerous areas such as the rockfall near the Sloan Canyon Petroglyph Site, which would concentrate use and impacts in other areas.

Soundscape

As in Alternative B, establishing baseline noise levels through monitoring could maintain naturalness, solitude, and primitive and unconfined recreation within the Wilderness by limiting amounts of unnatural noise.

Disturbance

Restoring vandalized and disturbed areas within the Wilderness, such as two-track roads, to natural conditions would increase the character of the Wilderness. Nonetheless, the restoration activities themselves could produce minor to moderate short-term impacts to the visitor experience by decreasing solitude due to the presence of the work crews and naturalness from the activity intrusion. The disturbances may have existed at the time of Wilderness designation or could occur in the future.

Removing or repairing vandalism and illegal dumping in the Wilderness, using appropriate methodology, would increase naturalness and solitude by eliminating trash and vandalism, while allowing minor management presence within the Wilderness.

To Wilderness from Cultural Resources (Alternative C)

Managing sites for scientific or traditional use could cause minor decreases in short-term naturalness, solitude, and primitive and unconfined recreation during excavation and other use of the site. Managing cultural resources within the Sloan Canyon Petroglyph Site or other sites for conservation use would maintain existing naturalness solitude and opportunities for primitive and unconfined recreation at these sites. Managing cultural resources within the Sloan Canyon Petroglyph Site or other sites for public use could decrease naturalness, solitude, and opportunities for primitive and unconfined recreation by increasing the amount of human presence, disturbance, and temporary improvements at or near these sites.

To Wilderness from Visual Resources (Alternative C)

As in all alternatives, managing the Wilderness as VRM Class I would maintain or improve naturalness over the long term by maintaining the scenic quality of the Wilderness and maintaining current levels of viewer sensitivity to disturbance or human presence.

To Wilderness from Interpretation (Alternative C)

Allowing the use of low-profile, visually unobtrusive interpretive media, in areas of high use, for the purposes of resource protection and enhancement of wilderness area values would maintain or have minor long-term impacts on naturalness by adding improvements within the Wilderness. Opportunities for primitive and unconfined recreation and solitude would be maintained or enhanced by providing information that is critical to wilderness experiences.

To Wilderness from Vegetation Management (Alternative C)

Conducting restoration and rehabilitation of disturbed areas within three years of the RMP Record of Decision could increase long-term naturalness by restoring natural vegetation condition but also could decrease it in the short term by allowing the use of mechanized or motorized tools if determined appropriate.

As in Alternative B, allowing restoration and rehabilitation of disturbed areas to be accomplished through natural processes could increase naturalness over the long term and would maintain solitude and naturalness in the short term by minimizing the amount of management activity within the Wilderness. However, minor decreases in naturalness could result from the spread of invasive species such as red brome. Focusing vegetation restoration in areas outside the Wilderness would maintain existing disturbances within the Wilderness, resulting in decreased naturalness over the long term.

Prohibiting collection of vegetation within the Wilderness would maintain or slightly increase existing levels of naturalness.

To Wilderness from Livestock Grazing (Alternative C)

As in Alternative A (No Action) and Alternative B, prohibiting construction of range improvements in the Wilderness would maintain existing levels of naturalness, solitude, and existing opportunities for primitive and unconfined recreation.

To Wilderness from Geology and Soils (Alternative C)

Allowing intrusive geologic research in the Wilderness could decrease levels of naturalness over the long term by disturbing vegetation or soils. Intrusive research also could cause short-term decreases in naturalness and opportunities for primitive and unconfined recreation during research operations. Primitive and unconfined recreation opportunities would be maintained by continuing to allow recreational collection of geologic material.

4.4.5 Impacts to Wilderness Under Alternative D: Emphasize Developed Uses

To Wilderness from Recreation (Alternative D)

Requiring that hikers remain on designated trails in a 2,223-acre portion of the Wilderness west of Sloan Canyon would maintain or increase naturalness by limiting cross-country travel in high-use areas with sensitive cultural resources. There could be minor short- and long-term impacts on naturalness, however, from construction of trails. Requiring horses to stay on designated trails in 4,104 acres of the Wilderness would maintain naturalness by limiting travel through sensitive cultural and natural resource areas in the western portion of the Wilderness. Allowing cross-country hiking and equestrian use in the remaining portions of the Wilderness would maintain or enhance naturalness, solitude, and opportunities for primitive and unconfined recreation, although visitors would naturally gravitate towards the most popular destinations and these areas may become crowded and solitude lost

As in Alternative C, designing a trail system in the NCA and the Wilderness to accommodate hiking and equestrian use could maintain or decrease naturalness in the Wilderness by allowing surface disturbance for trail construction, but providing constructed trails where users might otherwise develop social trails would

increase naturalness. Opportunities for trail-based primitive and unconfined recreation within the Wilderness would be increased where trails were constructed, but opportunities for off-trail primitive and unconfined recreation would be reduced. Solitude could be decreased with trail construction as increased numbers of people visited the Wilderness using the trail system. Emphasizing the recreation experience in trail system design could further decrease naturalness and solitude in the Wilderness. Evaluating social trails for adoption into the trails system could increase naturalness and opportunities for primitive and unconfined recreation by eliminating trails causing resource damage and accommodating appropriate recreation use. Opportunities for primitive and unconfined recreation could be increased by adding trails to the system.

Allowing camping within the Wilderness, outside the Sloan Canyon Petroglyph Site, could result in minor to moderate decreases in naturalness over the short and long term from devegetation, soil compaction, and litter. Allowing campfires in user-provided fire pans or using fire blankets and requiring all fire waste products to be packed out could result in minor to moderate decreases in naturalness over the short and long term from firewood collection, soil scarring from fires, and development of multiple fire rings.

Allowing bouldering and rock climbing in the Wilderness, outside sensitive resource areas, would increase climbing opportunities, but it could cause moderate increases in impacts to naturalness by increasing trails that approach climbing areas and increasing associated devegetation and soil compaction near the base of climbing routes.

As in the No Action alternative (Alternative A), allowing dogs off leash in the Wilderness would increase recreation opportunities for dog owners but could decrease naturalness, solitude, and opportunities for primitive and unconfined recreation by other users. Prohibiting dogs in the Sloan Canyon Petroglyph Site, the north access area, and other designated sensitive resource areas would eliminate the possibility of wildlife disturbance, conflicts with other recreationists, and presence of dogs waste in those areas.

Prohibiting geocaching would increase naturalness by eliminating impacts from new, unwanted trails, devegetation, soil compaction, erosion, and wildlife disturbance from human presence near and leading to geocache locations.

As in all alternatives, continuing to issue SRPs according to policy would maintain existing naturalness, solitude, and opportunities for primitive and unconfined recreation because all permitees would be required to operate in a manner consistent with wilderness protection. Allowing vending and competitive-use SRPs in the remainder of the NCA would not affect the Wilderness. Requiring organized groups to obtain SRPs on a case-by-case basis could have minor opportunity impacts by increasing steps necessary for a group to participate in wilderness recreation, which could displace some users or user groups. Naturalness as well as solitude for other Wilderness visitors could be improved by directing large-group recreation use to areas preferred by the BLM.

To Wilderness from the North McCullough Wilderness Area (Alternative D)

As in all alternatives, preparing a Wilderness Management Plan would help ensure that management activities consider and protect wilderness characteristics. Limiting visitation within the Wilderness to a number that does not cause adverse impacts to wilderness characteristics (e.g., social trails, crowding, vegetation damage, soil compaction, cultural resource impacts, increased permanent improvements, wildlife values) would maintain or produce minor decreases in naturalness, solitude, and opportunities for primitive and unconfined recreation. Visitation management would be improved by requesting visitors to register prior to wilderness entry.

Sloan Canyon Petroglyph Site Management

Not restricting group numbers or sizes or issuing permits in the Sloan Canyon Petroglyph Site could have major impacts on solitude by allowing an unlimited number of people in the canyon at one time. This loss of solitude would be particularly evident during periods of high use. Conversely, choosing not to restrict access by using group tours would maintain some opportunities for solitude by maintaining the possibility of visiting the canyon during low-use periods.

Controlling access to the canyon by using the visitor center at the north entrance, the contact station at Hidden Valley, and ongoing canyon patrols would cause major reductions in opportunities for primitive and unconfined recreation by restricting ways in which recreationists could experience this portion of the Wilderness. However, naturalness could be maintained by ensuring appropriate visitor use in and around sensitive cultural and natural resources.

As in Alternative C, limiting visitor use of the Sloan Canyon Petroglyph Site to the wash bottom and designated trails would maintain or increase naturalness in the area by minimizing social trails and would increase opportunities for primitive and unconfined recreation. Constructing the Hidden Valley trailhead to the Sloan Canyon Petroglyph Site, designating the wash in the canyon bottom from the visitor center, and designating a hiking trail at the north entrance to the Sloan Canyon Petroglyph Site would decrease long-term naturalness by adding approximately 3.7 miles of permanent trail within Wilderness. Routing the trail from the visitor center to the Sloan Canyon Petroglyph Site to avoid the rockfall area would maintain naturalness within the canyon by avoiding placement of improvements. However, primitive and unconfined recreation would be maintained by continuing to allow visitors to use the wash and climb the rockfall. Minor increases in solitude within Sloan Canyon could be anticipated if the majority of users accessed the area on the new trail.

As in Alternative C, prohibiting rock climbing in the Sloan Canyon Petroglyph Site would eliminate future impacts to wilderness characteristics in the canyon. Prohibiting dogs in the Sloan Canyon Petroglyph Site would increase naturalness by eliminating the possibility of wildlife harassment, conflicts with other recreationists, and presence of dog waste.

As in Alternative C, allowing signage within Sloan Canyon for resource protection or to control dispersed access would decrease naturalness within the canyon by adding permanent improvements. However, naturalness might be enhanced by the signage because resource damage could be prevented. Opportunities for primitive and unconfined recreation could be enhanced by signage because canyon visitors would be better informed of appropriate site use.

Recreation

Blocking unwanted social trails by using signage or other non-native materials could decrease short-term naturalness. However, long-term naturalness, solitude, and opportunities for primitive and unconfined recreation would be increased or enhanced by restoration of trails.

Installing Wilderness boundary signage on known Wilderness access routes and visitor use areas near the boundary would maintain or increase solitude and opportunities for primitive and unconfined recreation over the long term by improving awareness of the Wilderness boundary location. Naturalness could undergo moderate decreases by placing more extensive signage adjacent to the Wilderness boundary. Installing trailhead signage outside the Wilderness consisting of low-profile, natural-color signs that display route information, maps, and visitor information would increase naturalness and opportunities for primitive and unconfined recreation by improving visitor knowledge of wilderness characteristics and increasing user compliance with rules and regulations. Increased signage adjacent to the Wilderness boundary that is visible from the Wilderness could cause minor impacts to naturalness by adding permanent human improvements.

Allowing minimal improvements for the purposes of resource protection and enhancement of wilderness characteristics would maintain or increase levels of naturalness, solitude, and opportunities for primitive and unconfined recreation by allowing use of some improvements to mitigate or prevent damage resulting from wilderness use. However, disallowing installation of improvements for human health and safety could lead to long-term decreases in naturalness by encouraging users to avoid dangerous areas such as the rockfall near the Sloan Canyon Petroglyph Site, which would concentrate use and impacts in other areas.

Soundscape

As in Alternative B, establishing baseline noise levels through monitoring could maintain naturalness, solitude, and primitive and unconfined recreation within the Wilderness by limiting amounts of unnatural noise.

Disturbance

Restoring vandalized and disturbed areas within the Wilderness, such as two-track roads, to natural conditions would increase the character of the Wilderness. Nonetheless, the restoration activities themselves could produce minor to moderate short-term impacts to the visitor experience by decreasing solitude due to the presence of the work crews and naturalness from the activity intrusion. The disturbances may have existed at the time of Wilderness designation or could occur in the future.

Removing or repairing vandalism and illegal dumping in the Wilderness, using a minimum requirement/minimum tool analysis, would increase long-term naturalness and solitude by eliminating trash and vandalism but could cause moderate decreases in short-term naturalness and solitude by allowing more extensive management presence during removal of trash and vandalism.

To Wilderness from Cultural Resources (Alternative D)

Managing sites for scientific or traditional use could cause minor decreases in short-term naturalness, solitude, and primitive and unconfined recreation during excavation and other use of the site. Managing cultural resources within the Sloan Canyon Petroglyph Site or other sites for conservation use would maintain existing naturalness solitude and opportunities for primitive and unconfined recreation at these sites. Managing cultural resources within the Sloan Canyon Petroglyph Site or other sites for public use could decrease naturalness, solitude, and opportunities for primitive and unconfined recreation by increasing the amount of human presence, disturbance, and temporary improvements at or near these sites.

To Wilderness from Visual Resources (Alternative D)

As in all alternatives, managing the Wilderness as VRM Class I would maintain or improve naturalness over the long term by maintaining the scenic quality of the wilderness and maintaining current levels of viewer sensitivity to disturbance or human presence.

To Wilderness from Interpretation (Alternative D)

As in Alternative C, allowing use of low-profile, visually unobtrusive interpretive media, in areas of high use, for the purposes of resource protection and enhancement of wilderness area values would maintain or have minor long-term impacts on naturalness by adding improvements within the Wilderness. Visitor safety could be enhanced by the presence of additional interpretive information in the Wilderness. Opportunities for primitive and unconfined recreation and solitude would be maintained or enhanced by providing information that is critical to wilderness experiences.

To Wilderness from Vegetation Management (Alternative D)

Restoration and rehabilitation of disturbed areas within three years of the RMP Record of Decision could increase long-term naturalness by restoring natural vegetation conditions but also could decrease naturalness in the short term by allowing use of mechanized or motorized tools if determined appropriate.

As in Alternative B, allowing restoration and rehabilitation of disturbed areas to be accomplished through natural processes could increase naturalness over the long term and would maintain solitude and naturalness in the short term by minimizing the amount of management activity within the Wilderness. However, minor decreases in naturalness could result from the spread of invasive species such as red brome.

Prohibiting collection of vegetation within the Wilderness would maintain or slightly increase existing levels of naturalness.

To Wilderness from Livestock Grazing (Alternative D)

As in all alternatives, prohibiting construction of range improvements in the Wilderness would maintain existing levels of naturalness, solitude, and existing opportunities for primitive and unconfined recreation.

To Wilderness from Geology and Soils (Alternative D)

Allowing intrusive geologic research in the Wilderness could decrease levels of naturalness over the long term by disturbing vegetation or soils. Intrusive research also could cause short-term decreases in naturalness and opportunities for primitive and unconfined recreation during research operations. Primitive and unconfined recreation opportunities would be maintained by continuing to allow recreational collection of geologic material.

4.5 IMPACTS TO CULTURAL RESOURCES

Impacts to known cultural resource sites from authorized uses will be mitigated through project avoidance; redesign; and, if necessary, data recovery. As use of the NCA increases, authorized and unauthorized uses of cultural resources are expected to increase. Human activity poses the greatest threat to cultural resources in the Sloan Canyon Petroglyph Site, through vandalism or inadvertent damage. Increased management of human activity in areas with a high concentration of cultural resources under all alternatives is designed to reduce the potential for impacts to cultural resources.

4.5.1 Impacts to Cultural Resources Under Common to All Alternatives

To Cultural Resources from Cultural Resources (Common to All Alternatives)

Establishing and implementing a monitoring program could be used to establish a cultural resources baseline and provide information for management decisions if unacceptable changes occur. The monitoring program would allow for early detection and treatment of sites affected by inadvertent damage, vandalism, or natural deterioration, increasing preservation of cultural resource sites.

To Cultural Resources from Interpretation (Common to All Alternatives)

Preparing and implementing an interpretative plan would have moderate, long-term benefits by increasing public appreciation of cultural resources values of the NCA and surrounding area. Developing the interpretive program in cooperation from Tribes, interested agencies, and volunteer organizations would enhance interpretation opportunities and communication. Increased public appreciation could lead to better visitor stewardship behavior. Benefits associated with stewardship behavior include increased protection of

cultural sites, decreased inadvertent damage to or disturbance of cultural sites, decreased vandalism and looting, and preservation of the integrity of cultural resources.

To Cultural Resources from Wildland Fire Management (Common to All Alternatives)

Surface disturbances related to suppression activities (e.g., fire line construction, hand-line construction) could have minor to moderate impact on cultural resources. These impacts would be unlikely, however, because of the limited opportunity for natural wildland fire in the NCA.

To Cultural Resources from Livestock Grazing (Common to All Alternatives)

Implementing Nevada Rangeland Health Standards and Guidelines (Appendix B) would contribute to improved range conditions and soil and vegetation stability, reducing new and continued impacts to cultural resources from erosion. Developing new range improvements could have minor, long-term impacts on cultural resource sites, as could the presence of livestock. Livestock congregation and trailing at or across cultural resource sites could damage artifacts and the contexts in which they occur.

4.5.2 Impacts to Cultural Resources Under Alternative A: No Action:

To Cultural Resources from Recreation Opportunity Spectrum Zones (No Action)

Managing 26,605 acres in the NCA for primitive and semi-primitive nonmotorized recreation experiences in the North McCullough Range in the NCA could restrict motorized access to sites and reduce incidental damage (Figure 2.27).

To Cultural Resources from Recreation (No Action)

Allowing hiking and equestrian use throughout the NCA and mountain biking outside the Wilderness could result in a moderate impact to cultural resource sites from increased use and associated increases in incidental damage, as well as vandalism and theft. Continuing to construct and maintain trails could result in identification and recordation of cultural resource sites, increasing the number of known sites as well as the scientific knowledge of cultural resources. Trail construction activities also could damage previously unknown cultural resource sites. Sites discovered during trail construction would be more likely to be damaged than those identified during inventories. Indirectly, increased access from an expanded trial system could increase incidental damage, as well as vandalism and theft. Restoring unauthorized social trails would decrease incidental impacts, vandalism, and theft from cultural sites adjacent to the trails, as well as other sites in the area of social trails. Likewise, restoration would decrease the number of new social trails, reducing associated impacts to existing cultural resources.

Not designating any roads or routes within the NCA for OHVs would eliminate impacts from OHV use, such as erosion or vandalism.

Allowing rock climbing with no site-specific restrictions could result in marring, defacing, or destruction—incidental or purposeful—of cultural resource sites. Requiring organized groups to obtain SRPs on a case-by-case basis would allow for user education prior to certain user visits, which could result in a minor reduction of incidental damage to cultural resource sites.

To Cultural Resources from the North McCullough Wilderness Area (No Action)

Sloan Canyon Petroglyph Site

Limited management of visitor use in the Sloan Canyon Petroglyph Site could increase incidental damage and vandalism to cultural resources. Allowing self-guided use of this area would result in a moderate increase in incidental damage and vandalism to cultural resources as visitation increases.

Managing social trail proliferation according to existing management guidelines would result in more social trails, increasing incidental damage to cultural resource sites as well as vandalism or theft of cultural resources. Such unauthorized social trails could result in major impacts to cultural resource sites. Because existing management does not address management of vandalized sites, allowing vandalized cultural resource sites to persist could act as cues for other unauthorized activity.

Allowing rock climbing with no site-specific restrictions could result in marring, defacing, or destruction—incidental or purposeful—of cultural resource sites. Construction of permanent improvements in the Wilderness would require site-specific inventories and clearances that could identify more cultural resource sites.

To Cultural Resources from Cultural Resources (No Action)

Managing cultural resource sites, other than the Sloan Canyon Petroglyph Site, according to Section 106 of the National Historic Preservation Act (NHPA) and other appropriate guidance, would ensure that adverse affects are considered and mitigated when these sites are threatened by land-disturbing activities and preserve the sites' values. Specific site management would be considered after eligibility for the National Register of Historic Places is determined.

Managing rock shelters, rock art sites, prehistoric and historic sites, mining sites, and historic road/trail site types for public use in areas that have or are likely to receive intensive recreation use would ensure that scientific values are preserved from incidental damage, vandalism, or theft, as well as provide for ongoing monitoring and preservation. Inventories and excavations prior to intensive public use would increase scientific knowledge of these sites. Managing sites for conservation use in areas not likely to receive intensive recreation would preserve these sites' physical components.

Managing roasting pits, camp/open lithic scatters, rock features, and historic trash scatters for scientific use would provide for research opportunities, increasing scientific knowledge of these site types and preserving

them in place until data recovery is completed. Managing a representative sample of each of these site types for conservation use would preserve some in place for future use.

Sloan Canyon Petroglyph Site

Managing the Sloan Canyon Petroglyph Site according to Section 106 of the NHPA and other appropriate guidance would ensure that adverse effects are considered and cultural resources are preserved. Managing cultural resource sites in the Sloan Canyon Petroglyph Site for conservation use would preserve these resources in place.

To Cultural Resources from Transportation (No Action)

Because no roads or routes are designated under the No Action alternative, potential visitor impacts to cultural resource sites adjacent to existing roads and routes would be reduced. Minor, long-term damage could occur from water diverted by existing routes, as well as from widening and maintenance of existing ROW access roads.

To Cultural Resources from Wildlife Management (No Action)

Restrictions on development or placement of surface-disturbing activities for raptor protection would preserve adjacent cultural resource sites in place.

4.5.3 Impacts to Cultural Resources Under Alternative B: Emphasize Natural Character

To Cultural Resources from Management Emphasis Areas (Alternative B)

Managing approximately 71 percent of the NCA for primitive and nonmotorized recreation experiences could restrict surface disturbance that could incidentally damage or destroy sites. An estimated 121 prehistoric sites are present in the affected area.

To Cultural Resources from Recreation (Alternative B)

Not designating hiking trails could decrease minor incidental damage to cultural resources. Allowing cross-country hiking, however, could increase unmitigated incidental damage to cultural resources, as well as vandalism and theft. Without specific areas of impact, monitoring would be more difficult. Restoring unauthorized social trails would decrease incidental impacts, vandalism, and theft on cultural sites adjacent to the trail. Likewise, restoration could decrease the number of new social trails, reducing associated impacts to existing cultural resources.

Sites adjacent to designated mountain bike routes and equestrian trails in the Anthem Trails and North McCullough Road ROWs could be impacted by erosion from water diverted by the route, as well as from

route widening and braiding. Sites throughout the remainder of the NCA would not be impacted by mountain bike or equestrian use.

Prohibiting OHV use, camping, rock climbing, geocaching, recreational target shooting, and rock hounding would minimize inadvertent damage and vandalism to cultural resources from these activities.

Requiring organized groups to obtain SRPs on a case-by-case basis would allow for user education prior to visits, which could result in a reduction of incidental damage outside the Sloan Canyon Petroglyph Site.

To Cultural Resources from the North McCullough Wilderness Area (Alternative B)

Blocking and restoring social trails would decrease incidental damage, vandalism, or theft on cultural sites impacted by the existence of the social trails. It also would decrease the number of new social trails, which could decrease the impact on other sites. However, dispersing social trail use to other areas could increase minor impacts to cultural resource sites by dispersing use from an impacted area to nonimpacted areas.

Sloan Canyon Petroglyph Site Management

Restricting access in the Sloan Canyon Petroglyph Site to no more than one guided group at a time would be a major factor in decreasing impacts to the cultural resources in this area. Limiting group sizes to 12 people also would decrease impacts, compared to the No Action alternative (Alternative A). Requiring organized groups of 6–20 people, regardless of timing, to obtain use authorization would allow rules and regulations to be taught, further decreasing minor impacts. Within the Sloan Canyon Petroglyph Site, incidental damage to cultural resource sites also would decrease from use authorizations.

Requiring guided use of the Sloan Canyon Petroglyph Site could nearly eliminate incidental damage and vandalism to cultural resources. Increased managerial presence in general—specifically in the form of ongoing canyon patrols, access control, and signage at trailheads—would decrease incidental damage, vandalism, and theft. Limiting recreation use to the canyon bottom would reduce impacts to cultural resource sites and petroglyph panels from walking and climbing on canyon sides. Incidental damage and vandalism to sites, if it occurred, would be concentrated on sites at the canyon bottom.

Not placing signage within the canyon could result in continued minor impacts from incidental damage and vandalism. Ongoing patrols could reduce the scope of these impacts. Limiting canyon use to the hours the contact station is open would decrease impacts to cultural resource sites because of increased monitoring and surveillance. Removing and repairing evidence of vandalism in the Sloan Canyon Petroglyph Site would remove social cues that could encourage other visitors to behave similarly, further reducing impacts.

To Cultural Resources from Cultural Resources (Alternative B)

Assigning cultural resource sites to use allocations would provide for proactive management of sites for their varied values. Minimizing changes to the sites' natural condition would result in most sites being managed with restrictive prescriptions, preserving in place or through data recovery cultural resource values. Managing sites not eligible for the National Register of Historic Places, as well as simple isolated sites, for experimental and scientific use would result in basic data recovery or use of these simple sites. This management would provide minor research opportunities.

Assigning the majority of cultural resource sites to conservation for future use and traditional use would protect these sites and the information they contain while allowing for traditional uses, although minor resources degradation could occur during use. It also would limit long-term research opportunities on the majority of sites. Managing remaining sites, excluding rock art sites, for scientific, public, and traditional uses would allow for scientific study of these resources, increasing scientific knowledge of these sites while allowing for traditional uses. Preparing some of these sites for public use would increase scientific knowledge of the sites. Remaining rock art sites would be conserved for scientific study to the exception of other uses. Research opportunities would be lowest for rock art sites under this alternative.

Requiring a Class III (100 percent) inventory in areas with high and medium density of cultural resource sites would identify previously unknown cultural resource sites and help prevent inadvertent damage or destruction from surface-disturbing actions on nearly 31,000 acres (64 percent) of the NCA. It is estimated this inventory would preserve information from more than 112 sites throughout the NCA. Managing areas with low site density with reconnaissance-level inventories prior to land-disturbing activities would allow for site identification. Estimated site density in these areas is one site for more than 1,100 acres. Basic (reconnaissance) inventories would ensure adequate compliance with Section 106 of the NHPA.

Sloan Canyon Petroglyph Site Management

Managing sites in the Sloan Canyon Petroglyph Site for conservation, public, and traditional uses would ensure their preservation from disturbance while allowing for tradition uses. Data collected when preparing these sites for public use would increase scientific knowledge of the area.

To Cultural Resources from Interpretation (Alternative B)

Providing low-profile, visible interpretive media for resource protection would decrease minor incidental damage to cultural resources, as well as vandalism and theft.

To Cultural Resources from Facilities (Alternative B)

Constructing a contact station near the NCA boundary at the north entrance to Sloan Canyon and a gravel parking lot and associated features at the Hidden Valley Trailhead would require standard inventories (Section 106) that could identify additional cultural resource sites. The presence of the contact station and its staff

would decrease impacts to the cultural resources in Sloan Canyon Petroglyph Site because of visitor education and patrols. Interpretive material at the Hidden Valley Trailhead could inform visitors about sensitive resources and reduce impacts to the resource.

Constructing a gravel parking lot at the Dutchman Pass Trailhead would require standard inventories (Section 106) that could identify additional cultural resource sites. Interpretive material could inform visitors about sensitive resources and reduce impacts to the resource. Although no developed access would be constructed at the Quo Vadis Trailhead, the area would receive use. Without a hardened area and interpretive/educational kiosks, inadvertent damage or vandalism to cultural resources could occur.

To Cultural Resources from Lands and Realty (Alternative B)

Not allowing commercial filming within the NCA would eliminate potential impacts to cultural resources from increased land disturbance.

To Cultural Resources from Transportation (Alternative B)

Closing all other roads and routes to motorized use would decrease transportation-related impacts such as erosion, road widening and maintenance, and vandalism of adjacent sites.

To Cultural Resources from Vegetation Management (Alternative B)

Avoiding surface-disturbing activities within sensitive or Special Status Species habitat would preserve cultural resources in these areas in place. Restoring and improving the natural conditions of native plant communities would minimize erosion and incidental damage to cultural resources in disturbed areas.

To Cultural Resources from Wildlife Management (Alternative B)

Permanently closing trails or areas, as well as restricting activities, to protect wildlife species also would preserve cultural resource sites in these areas. Limiting trail construction and facility and ROW placement in known bighorn sheep lambing areas, areas of known bighorn sheep movement, and known raptor nesting areas could preserve cultural resource sites in these areas from incidental damage, disturbance, or destruction related to such developments and use. Prohibiting casual and commercial collection of reptiles would eliminate impacts related to collection activities (e.g.., inadvertent damage or destruction of cultural resource sites).

4.5.4 Impacts to Cultural Resources Under Alternative C: Moderate Developed Use

To Cultural Resources from Management Emphasis Areas (Alternative C)

Approximately 64 percent of the NCA would be managed for primitive and nonmotorized recreation, and an estimated 82 prehistoric sites would be present in the affected area.

To Cultural Resources from Recreation (Alternative C)

Restricting hiking to designated trails could direct use away from culturally sensitive areas on approximately 27 percent of the NCA. Cross-country hiking impacts would be eliminated in the Sloan Canyon Petroglyph Site, and access to this area would be on two designated trails from the north and the Hidden Valley trail from the south. Allowing cross-country hiking through the remainder of the NCA would increase incidental damage to cultural resources. Hikers could be drawn to interesting but culturally sensitive features in this area, increasing resource damage. Adding to the trail system would require standard inventories and clearances. More cultural resource sites could be identified through this process, and as a result of data recovery, although the site's information would be preserved.

Focusing equestrian use on designated trails could direct such use away from culturally sensitive areas. Allowing cross-country equestrian use through the remainder of the NCA could increase incidental damage to cultural resources. Restricting mountain bike use to designated routes on 5,326 acres (approximately 11 percent) of the NCA would eliminate impacts from bike use for sites located away from designated routes; however, fewer than 14 cultural resource sites are anticipated in the use area. Sites adjacent to designated routes could be impacted by erosion from water diverted by the route, as well as from route widening and braiding. Sites on the remaining 43,124 acres would not be impacted by mountain bike use.

As in Alternative A (No Action) and Alternative B, blocking and restoring social trails would decrease incidental damage, vandalism, or theft on cultural sites impacted by the existence of social trails. It also would decrease the number of new social trails, which could decrease the impact on other sites. However, dispersing social trail use to other areas could increase minor impacts to cultural resource sites by dispersing use from an impacted area to nonimpacted areas.

Requiring organized groups to obtain SRPs on a case-by-case basis would allow for user education prior to visits, which could result in a minor reduction of incidental damage outside the Sloan Canyon Petroglyph Site. This impact also would apply to vending and competitive-use SRPs.

To Cultural Resources from the North McCullough Wilderness Area (Alternative C)

Sloan Canyon Petroglyph Site

Requiring guided use of the Sloan Canyon Petroglyph Site during periods of high use would decrease incidental damage and vandalism to cultural resources. During periods of low use, self-guided tours would maintain or slightly decrease moderate impacts from incidental damage and vandalism. Requiring nonguided canyon visitors to be permitted and to experience interpretive presentations on appropriate use and etiquette would decrease minor impacts from incidental damage and vandalism.

Restricting access in the Sloan Canyon Petroglyph Site to no more than one guided group at a time would decrease impacts to the cultural resources in this area. Limiting group sizes to 20 people also would decrease impacts compared to the No Action alternative (Alternative A), but impacts could be increased compared to Alternative B. Requiring guided use of the canyon for groups of 10–35 people, regardless of time, would decrease potential impacts associated with larger groups.

Managerial presence—specifically in the form of ongoing canyon patrols, access control, and signage at trailheads—would decrease incidental damage, vandalism, and theft in periods of high and low use. Limiting canyon use to the hours the visitor's center is open would further decrease impacts to cultural resource sites because of increased monitoring and surveillance compared to the No Action alternative (Alternative A).

Limiting recreation use of the Sloan Canyon Petroglyph Site to the canyon bottom and a few designated trails would have long-term benefit to cultural resources located on the canyon sides by reducing erosion from social trails and inadvertent damage. Constructing a few trails also would decrease the need for and impacts from social trails. The severity of impact of direct trail effects such as data recovery efforts, accidental damage, and disturbance depends on implementation of trail placement. Designing, constructing, and maintaining trails (at the north and south entrances of the Sloan Canyon Petroglyph Site, as well as others) would allow for preservation of cultural resource sites by focusing intensive recreation use in areas where such use would not affect cultural resource sites.

Dispersing social trail use to other areas could increase minor impacts to cultural resource sites by dispersing use from an impacted area to nonimpacted areas. Dispersal could increase incidental damage and vandalism to cultural resource sites. Blocking and restoring social trails would decrease incidental damage, vandalism, or theft on cultural sites impacted by the existence of the social trails. It also would decrease the number of new social trails, which could decrease the impact on other sites.

Allowing minimal improvements for resource protection could help protect cultural resources and decrease damage impacts. Installing signs would increase the effectiveness of restoration actions, increasing the preservation of affected sites. Removing and repairing evidence of vandalism in the Sloan Canyon Petroglyph Site and the Wilderness would remove social cues that could encourage other visitors to behave

similarly. Likewise, placing limited signage in the canyon could decrease minor incidental damage and vandalism, compared to Alternative B.

To Cultural Resources from Cultural Resources (Alternative C)

Assigning half of the cultural resource sites to conservation for future use and traditional use would protect these sites and the information they contain while allowing for traditional uses. Although long-term research opportunities may be limited on half of the sites, managing the remainder of the sites for scientific uses, among others, could increase scientific knowledge of these sites. However, more sites would be preserved through data recovery rather than preserved in place.

Managing half of the sites, excluding rock art sites, for scientific, public, and traditional uses would allow for scientific study of these resources, increasing scientific knowledge of these sites while allowing for traditional uses. Preparing some of these sites for public use would increase scientific knowledge. Half of the rock art sites would be conserved for scientific study to the exception of other uses. There would be more research opportunities for rock art sites under this alternative than under Alternative B.

As in Alternative B, managing sites not eligible for the National Register of Historic Places, as well as simple isolate sites, for experimental and scientific use would result in basic data recovery or use of these simple sites. This management would provide minor research opportunities.

Sloan Canyon Petroglyph Site

Managing sites in the Sloan Canyon Petroglyph Site for traditional, conservation, public, and scientific uses would ensure their preservation from disturbance, while allowing for traditional and scientific uses. Preparing the sites for public use would increase scientific knowledge of the area. Allowing scientific use with a restriction to scientific activities that would have no effect on a site's eligibility for the National Register of Historic Places would limit the range of recovery methods. Such use and restrictions would preserve these sites in place, although it could limit the amount and level of information that is recoverable.

To Cultural Resources from Interpretation (Alternative C)

Placing interpretive media, such as educational signs or printed materials, for easier visitor use compared to Alternative B would increase education and interpretation of NCA users concerning the presence of cultural resources and their vulnerability to damage and destruction through human or natural processes. Guided tours also will include a stewardship message, and interpretive information will be given to all permitees, including outfitters and guides. This approach would decrease minor incidental damage to cultural resource sites as mindfulness and stewardship is imparted to visitors.

Developing interpretive materials in cooperation with interested Tribes would provide opportunities to convey Native American perspectives regarding the NCA.

To Cultural Resources from Facilities (Alternative C)

Constructing a visitor center near the NCA boundary at the north entrance to Sloan Canyon and a gravel parking lot and associated features at the Hidden Valley Trailhead would require standard inventories (Section 106) that could identify additional cultural resource sites. More extensive staff and interpretive facilities would increase visitor contacts compared to Alternative B, further decreasing incidental damage, vandalism, or theft.

The presence of the visitor center, with a central theme of the NCA's association with Native Americans, would provide unique educational opportunities for visitors. In addition, designing the center to accommodate Native American activities or uses would convey the importance of NCA resources to Native Americans.

Constructing parking areas and providing interpretive material at the Hidden Valley, Dutchman Pass, and Quo Vadis Trailheads could inform visitors about sensitive resources and reduce impacts to the resource. This strategy could allow visitors to receive interpretive and educational information, reducing user-related impacts to cultural resources. The parking areas would require standard inventories (Section 106) that could identify additional cultural resource sites.

To Cultural Resources from Transportation (Alternative C)

Cultural resource sites adjacent to the Hidden Valley Road, Dutchman Pass Road, Quo Vadis Mine Road, and Rattlesnake Canyon Road could be impacted by erosion from water diverted by the route, as well as from route widening and maintenance activities. Increased use on these roads could result in minor damage or vandalism to cultural resource sites.

To Cultural Resources from Vegetation Management (Alternative C)

As in Alternative B, avoiding surface-disturbing activities within sensitive or Special Status Species habitat would preserve cultural resources in these areas in place. Restoring and improving the natural conditions of native plant communities would minimize erosion and incidental damage to cultural resources in disturbed areas.

To Cultural Resources from Wildlife Management (Alternative C)

As in Alternative B, permanently closing trails or areas, as well as restricting activities, to protect wildlife species also would preserve cultural resource sites in these areas. Limiting trail construction and facility and ROW placement in known bighorn sheep lambing areas, areas of known bighorn sheep movement, and known raptor nesting areas could preserve cultural resource sites in these areas from incidental damage, disturbance, or destruction related to such developments and use. Seasonally restricting trail construction and facility and ROW placement for wildlife management would not necessarily afford the same preservation because construction and use could occur.

Prohibiting surface-disturbing collection activities for reptile collection would minimize damage or destruction of cultural resource sites.

4.5.5 Impacts to Cultural Resources Under Alternative D: Emphasize Developed Uses

To Cultural Resources from Management Emphasis Areas (Alternative D)

Approximately 59 percent of the NCA would be managed for primitive and nonmotorized recreation, and an estimated 76 prehistoric sites could be less likely to be inadvertently impacted in this area. Approximately, 17 sites on 5,666 acres designated developed and roaded developed could be more susceptible to impacts.

To Cultural Resources from Recreation (Alternative D)

Restricting hiking to designated trails could focus use away from culturally sensitive areas on approximately 32 percent of the NCA. Cross-country hiking impacts would be eliminated in the Sloan Canyon Petroglyph Site, as would cross-country access to the site from the south and west. Allowing cross-country hiking through the remainder of the NCA could increase incidental damage to cultural resources, as well as vandalism and theft. Hikers could be drawn to interesting but culturally sensitive features in this area, increasing resource damage.

Trails would be located to avoid sensitive cultural resource sites, when possible, and such avoidance would decrease the impact to previously unknown cultural resource sites. Indirectly, increased access could increase incidental damage, as well as vandalism and theft. Impacts would be the same as in the No Action alternative (Alternative A) for trails and trail restoration: blocking and restoring social trails would decrease incidental resource damage. However, dispersing social trail use to other areas could increase minor impacts to cultural resource sites by dispersing use from an impacted area to nonimpacted areas. Adapting or using unauthorized social trails would provide the flexibility to use social trails that are located in appropriate locations to decrease impacts to cultural resource sites.

Focusing equestrian use on designated trails could direct use away from culturally sensitive areas. Cultural resources in the Sloan Canyon Petroglyph Site would be preserved from equestrian use impacts. Allowing cross-country equestrian use through the remainder of the NCA could cause minor incidental damage to cultural resources.

Restricting mountain bike use to designated routes on 10,142 acres (approximately 21 percent) of the NCA would eliminate impacts from bike use for sites located away from designated routes. Fewer than 30 cultural resource sites are anticipated in the use area. Sites adjacent to designated routes could be impacted by erosion from water diverted by the route, as well as from route widening and braiding. Sites on the remaining 38,308 acres would not be impacted by mountain bike use.

Allowing OHV use on designated routes could moderately increase damage to cultural sites in the areas from erosion, inadvertent damage, and vandalism. Existing routes could be widened and deepened through continued use.

Allowing dispersed, primitive camping in the southern portion of the NCA (outside the Sloan Canyon Petroglyph Site) could have minor impact on cultural resources sites by causing surface disturbance from camping and fires. Allowing dogs off-leash everywhere except the Sloan Canyon Petroglyph Site could cause damage to sites by digging and rock scrambling.

As in alternative C, requiring organized groups to obtain SRPs on a case-by-case basis would allow for user education prior to visits, which could result in a minor reduction of incidental damage outside the Sloan Canyon Petroglyph Site. This impact also would apply to vending and competitive-use SRPs.

To Cultural Resources from the North McCullough Wilderness Area (Alternative D)

Sloan Canyon Petroglyph Site Management

As in the No Action alternative (Alternative A), limited management of visitor use in the Sloan Canyon Petroglyph Site could increase incidental damage and vandalism to cultural resources. Allowing self-guided use of this area would result in a moderate increase in incidental damage and vandalism to cultural resources as visitation increases. Allowing larger use groups in the Sloan Canyon Petroglyph Site could have major impacts to cultural resource sites, however, requiring guided use of the canyon for groups of 10–35 people, regardless of time, would decrease potential impacts associated with larger groups.

As in Alternatives B and C, ongoing patrols could reduce the scope of these impacts. Limiting canyon use to the hours the visitor's center is open would decrease impacts to cultural resource sites because of increased monitoring and surveillance. Removing and repairing evidence of vandalism in the Sloan Canyon Petroglyph Site would remove social cues that could encourage other visitors to behave similarly, further reducing impacts.

As in Alternative C, limiting recreation use of the Sloan Canyon Petroglyph Site to the canyon bottom and a few designated trails would have long-term benefit to cultural resources located on the canyon sides by reducing erosion from social trails and inadvertent damage. Constructing trails also would decrease the need for and impacts of social trails. Increasing access to the canyon through ladders and improved trails would allow more users to visit, increasing the impacts from use such as incidental damage and vandalism. Increasing patrols would decrease these impacts, however. The severity of impact of direct trail effects such as data recovery efforts, accidental damage, and disturbance depends on implementation of trail placement. Designing, constructing, and maintaining trails (at the north and south entrances of the Sloan Canyon Petroglyph Site, as well as others) would allow for preservation of cultural resource sites by focusing intensive recreation use to areas where such use would not affect cultural resource sites. In Alternative D, however, cultural resources could be mitigated if avoidance is not possible for design and construction.

Dispersing social trail use to other areas could increase minor impacts to cultural resource sites by dispersing use from an impacted area to nonimpacted areas. Dispersal could increase incidental damage and vandalism to cultural resource sites. Blocking and restoring social trails would decrease incidental damage, vandalism, or theft on cultural sites impacted by the existence of social trails. It also would decrease the number of new social trails, which could decrease the impact on other sites.

Allowing more improvements, such as signage, in Alternative D could provide for greater resource protection and help protect cultural resources by decreasing damage impacts. Installing signs would increase the effectiveness of restoration actions, increasing the preservation of affected sites. Removing and repairing evidence of vandalism in the Sloan Canyon Petroglyph Site and the Wilderness would remove social cues that could encourage other visitors to behave similarly. .

To Cultural Resources from Cultural Resources (Alternative D)

Assigning the majority of known sites, except rock art sites, to scientific and traditional use would allow opportunities for extensive research within the Sloan Canyon NCA while allowing for traditional uses. In the long term, most of these sites would be preserved through data recovery, increasing scientific knowledge of this site type. Assigning the remainder of the sites to conservation for future use would preserve the sites in place for future study, eliminating all other uses but traditional uses in the interim.

Assigning the majority of rock art sites outside the Sloan Canyon Petroglyph Site to traditional and public uses would ensure that scientific values are preserved from incidental damage, vandalism, or theft. Inventories prior to public use would increase knowledge of cultural resources in the area. Research opportunities in the remainder of the sites would be moderate; some would be conserved and others would be studied. Same as Alternative B, managing sites not eligible for the National Register of Historic Places, as well as simple isolated sites, for experimental and scientific use would result in basic data recovery or use of these simple sites. This management would provide minor research opportunities.

Sloan Canyon Petroglyph Site Management

As in Alternative C, managing sites in the Sloan Canyon Petroglyph Site for traditional, conservation, public, and scientific uses would ensure their preservation from disturbance while allowing for traditional and scientific uses. Preparing sites for public use would increase scientific knowledge of the area. Allowing scientific use, with restriction to scientific activities that would have no effect on a site's eligibility, would limit the range of recovery methods. Such use and restrictions would preserve the sites in place, although it also could limit the amount and level of information that is recoverable.

To Cultural Resources from Interpretation (Alternative D)

Interpretive aids such as educational signs or printed materials for visitor use would educate NCA users concerning the presence of cultural resources and their vulnerability to damage and destruction through

human or natural processes. This material would decrease minor incidental damage to cultural resource sites as mindfulness and stewardship is imparted to visitors. Drawing attention to cultural resource sites would raise their visibility, however, and could increase the likelihood of vandalism.

Developing interpretive materials in cooperation with interested Tribes would provide opportunities to convey Native American perspectives regarding the NCA.

To Cultural Resources from Facilities (Alternative D)

As in Alternative C, constructing a visitor center near the NCA boundary at the north entrance to Sloan Canyon and a gravel parking lot and associated features at the Hidden Valley Trailhead would require standard inventories (Section 106) that could identify additional cultural resource sites. More extensive staff and interpretive facilities would increase visitor contacts compared to Alternative B, further decreasing incidental damage, vandalism, or theft. The presence of the visitor center, with a central theme of the NCA's association with Native Americans, would provide unique educational opportunities for visitors. In addition, the center could be designed to accommodate Native American activities or uses.

Constructing parking areas and providing interpretive material at the Hidden Valley, Dutchman Pass, Quo Vadis, and Sutor Hills Trailheads could inform visitors about sensitive resources and reducing impacts to the resource. This strategy could allow visitors to receive interpretive and educational information, reducing user-related impacts on cultural resources. The parking areas would require standard inventories (Section 106) that could identify additional cultural resource sites.

To Cultural Resources from Transportation (Alternative D)

Cultural resource sites adjacent to the Hidden Valley Road, Dutchman Pass Road, East-West Power Line Road, Quo Vadis Mine Road, Rattlesnake Canyon Road, and Sutor Hills Road could be impacted by erosion from water diverted by the route, as well as from route widening and maintenance activities. Increased use on these roads could result in major damage or vandalism on cultural resource sites.

To Cultural Resources from Vegetation Management (Alternative D)

As in Alternatives B and C, avoiding surface-disturbing activities within sensitive or Special Status Species habitat would preserve cultural resources in these areas in place. Restoring and improving the natural conditions of native plant communities would minimize erosion and incidental damage to cultural resources in disturbed areas.

To Cultural Resources from Wildlife Management (Alternative D)

Not restricting visitor use, ROWs, or facility construction in bighorn sheep habitat could increase impacts compared to Alternatives B and C, although impacts would be minor. Impacts could include identification of more sites, as well as an increase in incidental damage and vandalism. Prohibiting surface-disturbing activities

related to reptile collection would eliminate most impacts related to reptile collection. Incidental damage could occur to cultural resource sites through collection of reptiles using surface-disturbing activities.

4.6 Impacts to Visual Resources

Impacts to visual resources are described in terms of impact to scenic quality—meaning alteration of the natural components of the landscape such as landform, vegetation, color, adjacent scenery, and relative scarcity of a given type of landscape. Impacts also are described in terms of viewer sensitivity, which is a qualitative assessment of public concern for scenic quality.

Most proposed developments, facilities, or other disturbances would be mitigated to meet the objectives of the VRM class where the activity would take place, and a complete contrast rating analysis would be completed prior to design of all proposed projects. Facilities or other uses existing at the time of designation that cause impacts to visual resources within the NCA would be considered pre-existing, nonconforming uses. Visual resource objectives would be considered for the City of Henderson road and trails ROWs called for in the Sloan Canyon NCA Act.

4.6.1 Impacts to Visual Resources Under Common to All Alternatives

To Visual Resources from Visual Resources (Common to All Alternatives)

Designing features of signage, structures, or facilities to meet VRM objectives could maintain or increase the scenic quality of the existing landscape and maintain or decrease visitor sensitivity to changes.

To Visual Resources from Lands and Realty (Common to All Alternatives)

Renewing ROWs for communication facilities would maintain current scenic quality and viewer sensitivity over the long term. Renewing ROW grants with expiration dates would maintain existing scenic quality and viewer sensitivity to facilities. Allowing amendments to existing ROWs that meet the intent of the Sloan Canyon NCA Act could increase the scenic quality of the NCA and decrease viewer sensitivity resulting from the addition of facilities.

To Visual Resources from Wildlife Management (Common to All Alternatives)

Allowing construction and maintenance of wildlife water developments in the NCA or the Wilderness could have minor, long-term impacts to scenic quality and viewer sensitivity by creating increased visual contrasts where water developments were constructed.

To Visual Resources from Wildland Fire Management (Common to All Alternatives)

Fire suppression efforts could cause minor decreases in scenic quality if these efforts involved surface disturbance.

To Visual Resources from Livestock Grazing (Common to All Alternatives)

Continuing to allow grazing in the NCA and the Wilderness could cause minor decreases in scenic quality if grazing caused alterations in the vegetation composition.

4.6.2 Impacts to Visual Resources Under Alternative A: No Action

To Visual Resources from Recreation (No Action)

Allowing hiking, equestrian use, and mountain biking without trail designations or increased management could cause short- and long-term decreases in scenic quality and increased viewer sensitivity to social trails or other disturbances. Designating and constructing trails on a case-by-case basis also could cause minor to moderate decreases in scenic quality by adding linear trail features to the NCA landscape but would be more likely to minimize impacts to scenic quality and viewer sensitivity from social trails.

Restoring trails established within the NCA could increase short- and long-term scenic quality and maintain or decrease viewer sensitivity to social trails and other disturbances from trail uses. Not designating OHV routes would maintain or slightly decrease existing moderate to strong contrasts between OHV routes and the landscape of the NCA, maintaining existing scenic quality and viewer sensitivity.

To Visual Resources from Wilderness (No Action)

Conducting restoration to maintain naturalness within the Wilderness could cause minor to moderate short-term decreases in scenic quality and increases in viewer sensitivity associated with disturbance from restoration activities. Scenic quality would increase over the long term as vegetation and soils returned to natural conditions.

Proliferation of social trails caused by recreation use without designated trails could decrease scenic quality and increase viewer sensitivity to disturbances over the short and long term in areas where social trails developed. Installing wilderness boundary signage, signage in trailhead areas, or trailhead registers on a case-by-case basis could have minor, long-term impacts on scenic quality.

To Visual Resources from Visual Resources (No Action)

Designating the North McCullough Wilderness Area as VRM Class I would maintain the scenic quality of the landscape on approximately 30 percent of the NCA. Maintaining existing VRM Class II designations for portions of the NCA would maintain scenic quality on 16,734 acres along the ridge of the North McCullough

Range and in areas surrounding the Wilderness (approximately 35 percent of the NCA). Maintaining existing VRM Class III designations on 9,507 acres (approximately 20 percent) of the NCA could decrease scenic quality and increase viewer sensitivity if construction and facilities were developed in the northern and western portions of the NCA. Maintaining 7,440 acres of VRM Class IV established in the *Las Vegas RMP* (BLM 1998) (approximately 15 percent of the NCA) could cause major decreases in scenic quality and increases in viewer sensitivity if facilities were developed in these areas using VRM Class IV objectives.

To Visual Resources from Lands and Realty (No Action)

Because any new or amended ROWs would have to meet the intent of the Sloan Canyon NCA Act, construction of visible ROW facilities probably would cause long-term increases in scenic quality and long-term decreases in viewer sensitivity to new features.

To Visual Resources from Transportation (No Action)

Prohibiting public vehicle use of all roads and routes would cause a slight long-term increase in scenic quality in the NCA because of natural restoration.

To Visual Resources from Vegetation Management (No Action)

Restoring existing disturbances on a case-by-case basis would maintain current levels of scenic quality and viewer sensitivity.

4.6.3 Impacts to Visual Resources Under Alternative B: Emphasize Natural Character

To Visual Resources from Recreation (Alternative B)

Allowing hiking without trail designations or increased management could cause moderate to strong decreases in scenic quality and increases in viewer sensitivity to social trails or other disturbances over the short and long term. However, choosing not to designate any trails would eliminate short- and long-term impacts to scenic quality from constructed trails. Choosing not to construct additional trails could cause moderate to strong decreases in scenic quality and increases in viewer sensitivity to social trails or other disturbances over the short and long term. Closing the NCA to all OHV use would decrease the degree of contrast between OHV routes and the landscape of the NCA.

To Visual Resources from Sloan Canyon Petroglyph Site Management (Alternative B)

Choosing not to locate signage or improvements in the canyon would maintain scenic quality in Sloan Canyon. However, placing access signage within Sloan Canyon would cause minor decreases in scenic quality and increases in viewer sensitivity to the signs in or near the canyon where signs were installed.

To Visual Resources from Wilderness (Alternative B)

Restoration of soils and vegetation could increase the potential for minor short-term decreases in the scenic quality of the Wilderness landscape and minor increases in viewer sensitivity during restoration projects. However, restoration would increase the scenic quality of the Wilderness landscape over the long term. Closure of social trails, using natural materials, and restoring visible portions using natural materials would increase the scenic quality of the NCA and decrease viewer sensitivity to social trail disturbances.

Installing signage in high-use areas would cause minor decreases in scenic quality in high-use areas, whereas choosing not to designate or sign trailheads would maintain scenic quality in trailhead areas. Installing natural-color trailhead registers on high-use routes could cause minor to moderate long-term decreases in scenic quality.

To Visual Resources from Cultural Resources (Alternative B)

Assigning the Sloan Canyon Petroglyph Site or other prehistoric and historic sites to the public use category could cause minor decreases in scenic quality within and around the sites by allowing slight modifications of the sites to accommodate visitation.

To Visual Resources from Visual Resources (Alternative B)

Designating the North McCullough Wilderness Area as VRM Class I would preserve the existing character of the landscape on 14,765 acres (approximately 30 percent) of the NCA. Designating 28,117 acres (approximately 58 percent) of the NCA as VRM Class II could maintain or decrease changes in the degree of contrast between the NCA landscape and potential future projects. Designating a 5,568-acre portion of the NCA (approximately 11 percent of the NCA) as VRM Class III would partially retain the existing character of the landscape in these areas. No VRM Class IV would be designated, eliminating the possibility of large-scale decreases in scenic quality.

To Visual Resources from Interpretation (Alternative B)

Installing low-profile interpretive signage could decrease scenic quality in the areas of the NCA where interpretive signage was installed.

To Visual Resources from Facilities (Alternative B)

Construction of a contact station would cause a minor to moderate decrease in the scenic quality of the area north of Sloan Canyon. The contact station also would cause minor to moderate increases in viewer sensitivity because of the visibility of the contact station to all visitors approaching the NCA boundary at the north entrance of the canyon and the facility's proximity and visibility to area residents.

Construction of a gravel parking lot, interpretative kiosk, and vault toilet at the Hidden Valley Trailhead and Dutchman Pass Trailhead would cause minor to moderate long-term decreases in scenic quality and long-term increases in viewer sensitivity to the facilities in these areas.

To Visual Resources from Lands and Realty (Alternative B)

Because any new or amended ROWs would have to benefit the NCA, construction of visible new ROW facilities or construction of facilities in new ROWs would be required to maintain or decrease existing levels of visual contrast, which would lead to maintained or increased levels of scenic quality and decreased viewer sensitivity to ROW facilities. Existing communicationsites would be required to maintain or decrease current levels of visual contrast, which would maintain or improve scenic quality. Prohibiting new communicationsites would maintain existing scenic quality and viewer sensitivity to ROWs.

To Visual Resources from Transportation (Alternative B)

Closing the Hidden Valley Road at the NCA boundary would maintain existing scenic quality in the area by reducing its use. Closing all other roads and routes to motorized use would cause minor to moderate increases in scenic quality by eliminating all use and allowing natural rehabilitation of the roads over time.

To Visual Resources from Vegetation Management (Alternative B)

Conducting restoration in disturbed portions of primitive and nonmotorized MEAs could cause moderate short-term decreases in scenic quality and similar short-term increases in viewer sensitivity during the restoration projects. However, restoration efforts in all MEAs could cause long-term increases in scenic quality by reducing disturbance. Conducting fewer restoration efforts in primitive and nonmotorized MEAs would maintain existing scenic quality and viewer sensitivity to disturbance in those areas.

4.6.4 Impacts to Visual Resources Under Alternative C: Moderate Developed Use

To Visual Resources from Recreation (Alternative C)

Restricting hiking use to designated trails could cause minor decreases in scenic quality where trails were constructed within the 13,123 acres of the NCA where hiking would be limited to trails. About 11,526 acres of this area fall within VRM Classes I and II. However, limiting hiking to trails and constructing these trails could decrease or eliminate development of social trails, which would maintain or increase scenic quality. In all circumstances, viewer sensitivity to constructed trails would be less than sensitivity to social trails. Allowing hiking in open areas could cause minor to moderate short- and long-term decreases in scenic quality from social trails or other disturbances from hiking use.

Allowing equestrian use on designated trails and areas open to cross-country equestrian use could decrease scenic quality from constructing trails on 5,650 acres of the NCA, 2,256 acres of which fall within VRM

Classes I and II. As with hiking trails, however, limiting equestrian use to trails and constructing these trails could decrease or eliminate development of social trails, which would maintain or increase scenic quality. Allowing equestrian use in open areas could cause minor to moderate short- and long-term decreases in scenic quality from social trails or other disturbances from equestrian use.

Allowing mountain biking only on designated trails could cause short- and long-term decreases in scenic quality on 5,326 acres of the NCA, 2,108 acres of which fall within VRM Class II. However, construction of mountain biking trails would reduce or eliminate off-trail mountain bike use, which would maintain scenic quality in the NCA.

Constructing additional trails on an as-needed basis could maintain or increase scenic quality in the NCA and decrease viewer sensitivity to disturbance by minimizing social trails or other disturbances from trail uses. Similarly, restoring trails established within the NCA could increase scenic quality and reduce viewer sensitivity to disturbance by removing existing or newly developed social trails or other disturbances from trail uses.

Closing the NCA to all OHV use would maintain or increase scenic quality in the NCA by reducing use and disturbance of currently used OHV areas and routes. Viewer sensitivity to OHV-related disturbances would be reduced over time as routes and areas were manually or naturally rehabilitated.

To Visual Resources from Wilderness (Alternative C)

Sloan Canyon Petroglyph Site

Locating limited amounts of signage within Sloan Canyon or placing access signage within the canyon could cause minor decreases in scenic quality within Sloan Canyon. Viewer sensitivity to signage would be moderately increased by the confined canyon setting. As in Alternative B, placing access signage within Sloan Canyon would cause minor decreases in scenic quality and increases in viewer sensitivity to signs in or near the canyon where signs were installed.

Constructing a trail routed to avoid the rockfall area would maintain or increase scenic quality in and around Sloan Canyon by avoiding the need for permanent improvements within the canyon and routing the majority of canyon visitors through an adjacent wash that would not require substantial constructed features.

As in Alternative B, restoration of soils and vegetation could increase the potential for minor short-term decreases in the scenic quality of the Wilderness landscape and minor increases in viewer sensitivity during restoration projects. However, restoration would increase the scenic quality of the Wilderness landscape over the long term. Closure of social trails, using natural materials, and restoration of visible portions using natural materials would increase the scenic quality of the NCA and decrease viewer sensitivity to social trail disturbances.

Installing signage in high-use areas and at set intervals along the Wilderness boundary would cause long-term decreases in scenic quality and viewer sensitivity. Installing trailhead signage outside the Wilderness boundary could cause minor to moderate long-term decreases in scenic quality and increased viewer sensitivity by adding signage to the existing landscape. Installing trailhead registers on high-use routes could cause similar decreases in scenic quality and increases in viewer sensitivity.

To Visual Resources from Cultural Resources (Alternative C)

Assigning the Sloan Canyon Petroglyph Site or other prehistoric and historic sites to the public use category could cause minor decreases in scenic quality within and around the sites by allowing slight modifications of these sites to accommodate visitation.

To Visual Resources from Visual Resources (Alternative C)

Designating the North McCullough Wilderness Area as VRM Class I would preserve the existing character of the landscape on 14,765 acres (approximately 30 percent) of the NCA. Designating 27,089 acres of the NCA (approximately 56 percent) of the NCA as VRM Class II would maintain or increase scenic quality by limiting certain types of development within this portion of the NCA. Designating a 6,596-acre portion of the NCA (approximately 14 percent) as VRM Class III would partially retain the existing character of the landscape in these areas and could accommodate existing disturbances, as well as facilities proposed under this alternative. No VRM Class IV would be designated, eliminating the potential for major changes to scenic quality or viewer sensitivity in the NCA.

To Visual Resources from Interpretation (Alternative C)

Installing low-profile interpretive signage in areas of high use could decrease scenic quality and increase viewer sensitivity to the signs in high-use portions of the NCA. Installing highly visible media in staging areas could cause minor to moderate decreases in scenic quality and increases in viewer sensitivity. Installing low-profile, visually unobtrusive interpretive media in the Wilderness could cause minor to moderate decreases in scenic quality and moderate increases in viewer sensitivity to signage.

To Visual Resources from Facilities (Alternative C)

Construction of a visitor center would cause moderate to major decreases in scenic quality near the NCA boundary at the north entrance to Sloan Canyon from features of the visitor center and associated facilities. The visitor center would cause moderate to major long-term increases in viewer sensitivity by adding a large facility in a previously undisturbed area.

Construction of parking lots, kiosks, and vault toilets at the Hidden Valley Trailhead and Quo Vadis Trailhead and similar facilities plus an equestrian staging area at the Dutchman Pass Trailhead would cause moderate long-term decreases in scenic quality in these areas by adding facilities in primarily natural areas. The facilities would cause only minor increases in viewer sensitivity at the Dutchman Pass Trailhead, because

of adjacent development, but would cause moderate increases in viewer sensitivity at the Hidden Valley Trailhead and Quo Vadis Trailhead because of the undeveloped nature of these areas.

To Visual Resources from Lands and Realty (Alternative C)

As in Alternative B, any new or amended ROWs would have to benefit the NCA, so construction of visible new ROW facilities or construction of facilities in new ROWs would be required to maintain or decrease existing levels of visual contrast, which would lead to maintained or increased levels of scenic quality and decreased viewer sensitivity to ROW facilities. Existing communicationsites would be required to maintain or decrease current levels of visual contrast, which would maintain or improve scenic quality. Prohibiting new communicationsites would maintain existing scenic quality and viewer sensitivity to ROWs.

To Visual Resources from Transportation (Alternative C)

Designating the Hidden Valley Road as open to the Hidden Valley Trailhead would maintain or decrease scenic quality and maintain or increase viewer sensitivity because of continuing use and maintenance of the road. Opening the Dutchman Pass Road, Quo Vadis Mine Road, and Rattlesnake Canyon Road to licensed vehicles would cause minor decreases in scenic quality and increases in viewer sensitivity through increased road maintenance and road use.

To Visual Resources from Vegetation Management (Alternative C)

Conducting restoration in disturbed portions of primitive and nonmotorized MEAs could cause moderate short-term decreases in scenic quality and increases in viewer sensitivity in project areas. However, restoration efforts in any MEA would increase scenic quality and decrease viewer sensitivity to disturbances. Conducting fewer restoration efforts in primitive and nonmotorized MEAs would maintain existing scenic quality and viewer sensitivity to disturbance in those areas.

4.6.5 Impacts to Visual Resources Under Alternative D: Emphasize Developed Uses

To Visual Resources from Recreation (Alternative D)

Restricting hiking use to designated trails could cause minor decreases in scenic quality from construction of trails on 15,493 acres of the NCA, 12,956 acres of which fall within VRM Classes I and II. Allowing hiking in open areas could cause minor decreases in scenic quality and increases in viewer sensitivity from social trails or other disturbances from hiking use.

Allowing equestrian use on designated trails could cause minor decreases in scenic quality from construction of trails on 14,846 acres of the NCA, 10,200 acres of which fall within VRM Classes I and II. However, construction of trails probably would maintain or increase scenic quality and maintain or decrease viewer sensitivity by reducing the number of social trails. Allowing equestrian use in open areas could cause minor

decreases in scenic quality and increases in viewer sensitivity from social trails or other disturbances from equestrian use.

Allowing mountain biking on designated trails only could cause minor decreases in scenic quality from construction of trails on 10,142 acres of the NCA, 6,700 acres of which fall within VRM Class II. However, construction of trails probably would reduce visual impacts associated with off-trail mountain bike use.

Constructing additional trails on an as-needed basis could increase scenic quality and decrease viewer sensitivity to social trails or other disturbances from trail uses. Depending on the outcome of evaluation of any unauthorized trail within the NCA for inclusion into the trail system, there could be increases or decreases in visitor satisfaction. Trails that were included would increase visitor satisfaction by allowing additional recreational opportunities. Conversely, closing and restoring unauthorized trails would increase scenic quality and reduce viewer sensitivity to disturbance from trail use.

Constructing additional trails on an as-needed basis could maintain or increase scenic quality in the NCA and decrease viewer sensitivity to disturbance by minimizing social trails or other disturbances from trail uses. Similarly, restoring trails established within the NCA could increase scenic quality and reduce viewer sensitivity to disturbance by removing existing or newly developed social trails or other disturbances from trail uses.

Allowing OHV use on designated routes would cause minor to moderate long-term decreases in scenic quality of this area by increasing contrast between the routes and natural landscape. The designated routes have historically been used for OHV recreating.

Locating signage within Sloan Canyon or placing access signage within the canyon could cause minor to moderate decreases in scenic quality. Viewer sensitivity to signage would be moderately increased because of the confined canyon setting.

Constructing a trail routed to avoid the rockfall area would maintain or increase scenic quality in and around Sloan Canyon by routing most canyon visitors through an adjacent wash that would not require substantial constructed features. Placing a ladder in Sloan Canyon could cause moderate to strong short- and long-term decreases in scenic quality and increases in viewer sensitivity during construction of the ladder.

To Visual Resources from Wilderness (Alternative D)

Installing trailhead signage outside the Wilderness boundary could cause minor to moderate long-term decreases in scenic quality and increased viewer sensitivity by adding signage to the existing landscape.

As in Alternatives B and C, restoration of soils and vegetation could increase the potential for minor short-term decreases in the scenic quality of the Wilderness landscape and minor increases in viewer sensitivity during the restoration projects. However, restoration would increase the scenic quality of the Wilderness

landscape over the long term. Closure of social trails, using natural materials, and restoring visible portions using natural materials would increase the scenic quality of the NCA and decrease viewer sensitivity to social trail disturbances.

As in Alternative C, installing signage in high-use areas and at set intervals along the Wilderness boundary would cause long-term decreases in scenic quality and viewer sensitivity. Installing trailhead signage outside the Wilderness boundary could cause minor to moderate long-term decreases in scenic quality and increased viewer sensitivity by adding signage to the existing landscape. Installing trailhead registers on high-use routes could cause similar decreases in scenic quality and increases in viewer sensitivity.

To Visual Resources from Cultural Resources (Alternative D)

As in Alternatives B and C, assigning the Sloan Canyon Petroglyph Site or other prehistoric and historic sites to the public use category could cause minor decreases in scenic quality within and around the sites by allowing slight modifications of these sites to accommodate visitation.

To Visual Resources from Visual Resources (Alternative D)

Designating the North McCullough Wilderness Area as VRM Class I would preserve the existing character of the landscape on 14,765 acres (approximately 30 percent) of the NCA. Designating 26,301 acres of the NCA (approximately 54 percent) of the NCA as VRM Class II would maintain or increase scenic quality by limiting certain types of development within this portion of the NCA. Designating a 7,384 acre portion of the NCA (approximately 15 percent) as VRM Class III would partially retain the existing character of the landscape in these areas and could accommodate existing disturbances, as well as facilities proposed under this alternative. No VRM Class IV would be designated, eliminating the potential for major changes to scenic quality or viewer sensitivity in the NCA.

To Visual Resources from Interpretation (Alternative D)

Installing visible media designed to draw visitors' attention could cause a moderate to strong decrease in scenic quality and increase in viewer sensitivity from the new signage. Installing low-profile, visually unobtrusive interpretive media in the Wilderness could cause a weak to moderate decrease in scenic quality and increase in viewer sensitivity by adding signage in the Wilderness.

To Visual Resources from Facilities (Alternative D)

Construction of a large, multipurpose visitor center and numerous associated facilities would cause strong decreases in scenic quality near the NCA boundary at the north entrance to Sloan Canyon. Construction also would cause major increases in viewer sensitivity by adding a large facility in a previously undisturbed area.

Construction of a contact station, large gravel parking lot, interpretative kiosks, equestrian staging area, vault toilets, and campground would cause moderate to major long-term decreases in the scenic quality of the

upper Hidden Valley Trailhead landscape. These facilities would cause a major increase in viewer sensitivity by building in this primarily natural area.

Construction of hardened gravel parking lots, interpretative kiosks, vault toilets, and equestrian staging areas at the Dutchman Pass Trailhead and Quo Vadis Trailhead could cause moderate long-term decreases in scenic quality and increases in viewer sensitivity to the new facilities. Construction of a gravel parking lot, interpretative kiosk, and vault toilet at the Sutor Hills Trailhead would cause minor long-term decreases in scenic quality and minor increases in viewer sensitivity to development in this undisturbed area.

To Visual Resources from Lands and Realty (Alternative D)

As in Alternatives B and C, any new or amended ROWs would have to benefit the NCA, so construction of visible new ROW facilities or construction of facilities in new ROWs would be required to maintain or decrease existing levels of visual contrast, which would lead to maintained or increased levels of scenic quality and decreased viewer sensitivity to ROW facilities. Existing communicationsites would be required to maintain or decrease current levels of visual contrast, which would maintain or improve scenic quality. Prohibiting new communicationsites would maintain existing scenic quality and viewer sensitivity to ROWs.

To Visual Resources from Transportation (Alternative D)

Designating the Hidden Valley Road as open to the Hidden Valley Trailhead and contact station would maintain or decrease scenic quality and maintain or increase viewer sensitivity to the road through continuing use and maintenance of the road. Opening the Dutchman Pass Road, East-West Power Line Road, Quo Vadis Mine Road, Rattlesnake Canyon Road, and Sutor Hills Road to licensed vehicles would cause minor decreases in scenic quality and increases in viewer sensitivity through increased road maintenance and road use.

To Visual Resources from Vegetation Management (Alternative D)

As in Alternatives B and C, conducting restoration in disturbed portions of primitive and nonmotorized MEAs could cause moderate short-term decreases in scenic quality and increases in viewer sensitivity in project areas. However, restoration efforts in any MEA would increase scenic quality and decrease viewer sensitivity to disturbances. Conducting fewer restoration efforts in primitive and nonmotorized MEAs would maintain existing scenic quality and viewer sensitivity to disturbance in those areas.

4.7 IMPACTS TO INTERPRETATION

The Sloan Canyon NCA Act identifies one of the NCA's purposes as enhancing the area's educational resources for the enjoyment of present and future generations. Interpretation of the NCA increases visitors' emotional and cognitive connections to resources and visitors' respect and appreciation for the NCA's resources and improves visitor experiences. Interpretation can occur both on and off site through a wide

variety of media. Although there currently is no onsite interpretation in the NCA, opportunities exist; this section analyzes the impacts of RMP decisions on these opportunities.

4.7.1 Impacts to Interpretation Under Common to All Alternatives

To Interpretation from Interpretation (Common to All Alternatives)

Developing and implementing a comprehensive interpretive plan would implement RMP actions, including the *Interprative Strategy* (Appendix E), providing for full utilization of interpretive opportunities and decreasing contradictions in communicating or implementing the NCA's interpretive program. This decision would result in a major impact to interpretation. Encouraging partnerships with other organizations could improve the interpretive messages, both through development and delivery.

4.7.2 Impacts to Interpretation Under Alternative A: No Action

To Interpretation from Recreation (No Action)

Allowing hiking, equestrian use, and mountain biking would result in maintaining existing interpretive opportunities. The several trails that are used for these purposes, though not officially designated, would be managed on a case-by-case basis and would provide an opportunity for interpretation. Any expansion of the trail system would result in minor adjustments to interpretive opportunities.

To Interpretation from the North McCullough Wilderness Area (No Action)

Installing trailhead access signage would provide opportunities for an interpretive visitor interface. Wilderness restrictions would constrain interpretive media opportunities, but the absence of signage and other developments would enhance primitive, self-directed interpretive communication.

Sloan Canyon Petroglyph Site Management

Maintaining the current management of visitor use in the Sloan Canyon Petroglyph Site would result in minor increases in interpretive opportunities. There is no existing management direction for interpretation, and visitor use of Sloan Canyon would be allowed through self-guided tours. Existing management policies are designed for less-intensive recreation use and would limit interpretive opportunities to signage within Sloan Canyon or personal tour items such as brochures or trail guides.

To Interpretation from Cultural Resources (No Action)

Managing cultural sites in the Sloan Canyon Petroglyph Site for conservation, as per the *Las Vegas RMP* (BLM 1998), and for current- and future-generation enjoyment would allow for limited interpretive opportunities. These limited opportunities would result in a major impact, restricting the ability of the

interpretive program to meet its goals and objectives. Managing cultural resource sites in areas that experience or are likely to receive intense recreation use could expand interpretive opportunities.

To Interpretation from Interpretation (No Action)

The absence of current interpretive management decisions would have moderate impacts on interpretation. In the absence of planning direction, the interpretive program would not have the guidance required for successful implementation.

To Interpretation from Facilities (No Action)

The absence of management decisions related to facilities would impact interpretation. Because facilities represent one of the key visitor interfaces, having no facilities would eliminate interpretive opportunities, resulting in a major impact to the visitor experience.

To Interpretation from Transportation (No Action)

Designating no roads for licensed motorized travel would have a moderate impact on opportunities for interpretation.

4.7.3 Impacts to Interpretation Under Alternative B: Emphasize Natural Character

To Interpretation from Recreation (Alternative B)

Not designating hiking trails in the NCA would eliminate trails as an onsite interpretive opportunity, meaning that interpretation could be implemented only at the parking/staging areas. Closing most of the NCA to equestrian use and mountain biking would limit onsite interpretive opportunities for these user groups to the City of Henderson's North McCullough and Anthem Trails, as appropriate.

To Interpretation from the North McCullough Wilderness Area (Alternative B)

Not designating or signing trailheads adjacent to the Wilderness would eliminate visitor interface opportunities and reduce visitors' ability to interpret wilderness values and unique cultural resources.

Sloan Canyon Petroglyph Site

Requiring all visitors to join a guided tour when visiting the Sloan Canyon Petroglyph Site would provide opportunities for formal interpretation. Formal interpretation, to an individual or group, is the most successful type of interpretation because it allows messages to be tailored to the visitor. As such, guided tours would result in low to no impediments to communicating the interpretive message and opportunities for successful interpretation. In addition, limiting the number of guided groups in the Sloan Canyon

Petroglyph Site would decrease interference between tours. Limiting group size to 6–20 people could moderately increase the effectiveness of interpretive communication. Limiting visitor use in the Sloan Canyon wash would result in a minor change in interpretive opportunities because interpretation would be limited to what is accessible from the canyon bottom.

Requiring ongoing patrols of the Sloan Canyon Petroglyph Site by rangers or other staff during visitor use hours would provide opportunities for informal interpretation. Informal interpretation, or interpretation that is not planned, has one-on-one benefits that are similar to those of formal interpretation and can be tailored to varying resources and conditions.

To Interpretation from Cultural Resources (Alternative B)

Allowing public use of cultural sites in the Sloan Canyon Petroglyph Site would provide for more interpretive opportunities than the No Action alternative (Alternative A). Maintaining the site in its natural condition would not impede the ability to deliver the interpretive message. Assigning cultural use sites for public use could provide for increased interpretive opportunities. Not assigning rock art outside the Sloan Canyon Petroglyph Site to public use could result in a minor decrease in interpretive opportunities. The only rock art available for interpretation would be in the Sloan Canyon Petroglyph Site.

To Interpretation from Interpretation (Alternative B)

Minimizing the presence of interpretive media would result in a minor increase in interpretive opportunities compared to the No Action alternative (Alternative A) but a decrease in interpretive opportunities compared to Alternatives C and D. Interpretive opportunities would focus on contact stations or offsite and trailhead locations.

To Interpretation from Facilities (Alternative B)

Constructing a contact station near the NCA boundary at the north entrance to the Sloan Canyon would result in a moderate increase in interpretive opportunities. The presence of staff and the central location would provide opportunities for interpretation that are not currently present. However, construction and maintenance of the contact station could cause minor decreases in opportunities for offsite interpretation by shifting the emphasis to the contact station.

Constructing a parking lot with an interpretive kiosk at the Hidden Valley Trailhead and Dutchman Pass Trailhead would increase interpretive opportunities in these areas. Parking lots could be used as staging areas and trailheads. Such a concentration of users would provide opportunities for interpretation. Providing information throughout the City of Henderson would result in a minor increase in offsite interpretive opportunities for the NCA's resources.

To Interpretation from Transportation (Alternative B)

Closing all existing roads and routes to licensed vehicle use would eliminate opportunities for interpretation.

4.7.4 Impacts to Interpretation Under Alternative C: Moderate Developed Use

To Interpretation from Recreation (Alternative C)

Requiring users (hikers, equestrians, bikers) to stay on designated trails in some areas would retain the trailheads and trails as onsite interpretive opportunities. Onsite interpretive opportunities would be increased for equestrians and mountain bikers compared to Alternative B.

Designing and constructing a trail system to accommodate multiple trail uses would increase interpretive opportunities for multiple user groups who use similar trailheads and trails. This trail system also could provide interpretive and educational opportunities for user groups with different habits and/or goals. Including moderate levels of development in and near trails and associated facilities could provide opportunities for interpretive media that are conducive to resources such as loop trails or focal points for an array of recreational destinations. Adding trails would increase interpretive opportunities.

To Interpretation from the North McCullough Wilderness Area (Alternative C)

Installing trailhead access signage would increase interpretive visitor interface, providing opportunities for interpretation of wilderness values. Although these opportunities may not be inside the Wilderness, a trailhead provides the opportunity to set the stage for an interpretive experience.

Sloan Canyon Petroglyph Site

Allowing visitor use of the Sloan Canyon Petroglyph Site through both guided and self-guided tours, depending on visitation rates, would allow users to choose the type of interpretive opportunity they desire (formal interpretive programs or self-guided tours). Requiring interpretive presentations for nonguided Sloan Canyon visitors from the north entrance to Sloan Canyon would provide formal interpretive opportunities for self-guided users prior to entering the canyon. At other areas, nonguided visitors would experience an informal briefing while obtaining a use permit. In addition, using a BLM- guide interpretive interface during periods of high use would decrease message interference compared to not using guides during busy periods. Allowing organized group to use the Sloan Canyon Petroglyph Site only when accompanied by a guide would provide for formal interpretive opportunities. Limiting group size to 10–35 people could slightly decrease the effectiveness of interpretive communication compared to Alternative B.

Limiting the number of self- guided tour permits would decrease the number of individuals in the Sloan Canyon Petroglyph Site, which would decrease interpretive interference and increase the effectiveness of interpretation for Sloan Canyon Petroglyph Site users. Locating limited signage in the canyon could cause a minor increase in communication of the interpretive message. Limiting visitor use to the canyon bottom and

a small set of designated trails would expand interpretive opportunities compared to Alternative B. The designated trails could allow closer a relationship between visitors and resources that could enhance communication of the interpretive message.

As in Alternative B, requiring ongoing patrols of the Sloan Canyon Petroglyph Site by rangers or other staff during visitor use hours would provide opportunities for informal interpretation. Informal interpretation, or interpretation that is not planned, has one-on-one benefits similar to those of formal interpretation and can be tailored to varying resources and conditions.

To Interpretation from Cultural Resources (Alternative C)

As in Alternative B, allowing public use of cultural sites in the Sloan Canyon Petroglyph Site would provide for more interpretive opportunities than the No Action alternative (Alternative A). Maintaining the site in its natural condition would not impede the ability to deliver the interpretive message. Assigning cultural use sites for public use could provide for increased interpretive opportunities. Not assigning rock art outside the Sloan Canyon Petroglyph Site to public use could result in a minor decrease in interpretive opportunities because the only area available for interpretation would be in the Sloan Canyon Petroglyph Site.

To Interpretation from Interpretation (Alternative C)

Allowing use of low-profile, visually unobtrusive interpretive media would increase opportunities for interpretation, allowing for communication of interpretive messages. Limiting stationary interpretive media to specific areas identified for interpretation would focus intensive interpretive opportunities in areas best suited to deliver the interpretive message. Providing a full range of interpretive media would result in a moderate increase in the ability to deliver interpretive messages.

To Interpretation from Facilities (Alternative C)

Constructing a visitor center near the NCA boundary at the north entrance to Sloan Canyon would result in a major increase in interpretive opportunities. Including an interpretive use area, outdoor amphitheater, and classrooms would provide a spectrum of areas where interpretive interference could be eliminated and successful interpretive communication could be maximized through formal and informal interpretation, as well as through other media. Construction and maintenance of a visitor center could cause moderate decreases in opportunities for offsite interpretation by shifting the emphasis to the visitor center.

Impacts would be the same as in Alternative B for facilities at the Hidden Valley Trailhead and Dutchman Pass Trailhead: Interpretive opportunities in staging areas and trailheads would increase. Constructing a parking lot with an interpretive kiosk at the Quo Vadis Trailhead would increase interpretive opportunities in that area. Parking lots could be used as staging areas and trailheads.

Providing information throughout the City of Henderson would result in a minor increase in offsite interpretive opportunities about the NCA's resources.

To Interpretation from Transportation (Alternative C)

Allowing licensed vehicle use of existing roads (Dutchman Pass Road, Quo Vadis Mine Road, and Rattlesnake Canyon Road) would result in a major impact to interpretation. Each road would provide opportunities for various types of interpretation. Closure of other roads would produce a minor impact, depending on the resources being interpreted.

4.7.5 Impacts to Interpretation Under Alternative D: Emphasize Developed Uses

To Interpretation from Recreation (Alternative D)

As in Alternative C, requiring hikers to remain on trails in certain areas produces moderate impacts by providing ample opportunities for resource interpretation. Allowing equestrian use on designated horse trails would provide more onsite interpretive opportunities than the other three alternatives. Interpretive opportunities could exist at portions of the northeast and southern portions of the NCA, including trails, trailheads, and staging areas. In addition to shared trail systems, allowing a mountain bike–only trail system would increase onsite interpretive opportunities specifically for mountain bikers compared to Alternative C.

Designing and constructing a trail system to include the widest range of facilities in trail design expands available interpretive opportunities compared to Alternative C. Including the widest breadth of user considerations in constructing trails could provide more interpretive opportunities. It also could create conflict between user groups, decreasing the effectiveness of interpretive communication. Including moderate levels of development in and near trails and associated facilities could provide opportunities for interpretive media that are conducive to resources such as loop trails or focal points for an array of recreational destinations. Additional trails would increase interpretive opportunities, providing a greater increase in opportunities for interpretation than Alternative C.

Designating OHV routes would have moderate impact by providing interpretive opportunities specifically for these users.

To Interpretation from the North McCullough Wilderness Area (Alternative D)

As in Alternative C, installing trailhead access signage would increase interpretive visitor interface, providing opportunities for interpretation of wilderness values. Although these opportunities may not be inside the Wilderness, a trailhead provides the opportunity to set the stage for an interpretive experience.

Sloan Canyon Petroglyph Site

Not requiring permits or guides for individuals visiting the Sloan Canyon Petroglyph Site would increase interpretive opportunities by increasing the number of individuals who can participate. The presence of large numbers of participants could result in moderate to major interference with communication of the interpretive message, however, decreasing the effectiveness of interpretation. Providing self-guided tours of the Sloan Canyon Petroglyph Site would limit interpretive opportunities to signage within the canyon or personal tour items such as brochures or trail guides, although requiring interpretive presentations for nonguided canyon visitors from the north entrance to Sloan Canyon would provide formal interpretive opportunities for self-guided users prior to entering the canyon. With no limits on size and self-guided tours, the "noise" of visitors could interfere with interpretive communication.

Limiting visitor use to the canyon bottom and designated trails would expand interpretive opportunities compared to Alternatives B or C. The system of designated trails could allow closer a relationship between visitors and an array of resources. Locating limited signage in the canyon could cause a moderate increase in communication of the interpretive message.

To Interpretation from Cultural Resources (Alternative D)

Same as Alternative B, allowing public use of cultural sites in the Sloan Canyon Petroglyph Site would provide for more interpretive opportunities than the No Action alternative (Alternative A). Maintaining the site in its natural condition would not impede the ability to deliver the interpretive message.

Not assigning cultural resource sites, except for rock art sites, to public use could result in a minor decrease in interpretive opportunities. The only interpretable sites outside the Sloan Canyon Petroglyph Site would be rock art sites. Although allowing public use of some rock art sites could provide a minor increase in interpretive opportunities in addition to opportunities in the Sloan Canyon Petroglyph Site, no other cultural sites, specifically, would be available for interpretation.

To Interpretation from Interpretation (Alternative D)

Providing visible interpretive media designed to draw attention to interpreted resources would reduce interference to interpretive communication while delivering the interpretive message. Locating interpretive media to best interpret resources would enhance interpretive communication while reducing interference to communication related to the interpreted resources.

To Interpretation from Facilities (Alternative D)

As in Alternative C, constructing a visitor center near the NCA boundary at the north entrance to Sloan Canyon would result in a major increase in interpretive opportunities. Including an interpretive use area, outdoor amphitheater, and classrooms would provide a spectrum of areas where interpretive interference could be eliminated and successful interpretive communication could be maximized through formal and

informal interpretation, as well as through other media. Construction and maintenance of a visitor center could cause moderate decreases in opportunities for offsite interpretation by shifting the emphasis to the visitor center.

To complement the visitor center, a visitor contact station with interpretive kiosks and a campground would be constructed at the Hidden Valley Trailhead. This facility would create major increases in interpretive opportunities. Increased staffed and interpretative media would provide extensive interpretation opportunities. In addition, the campground could provide opportunities for formal interpretive programs associated with campground users.

Impacts would be the same as in Alternative C for facilities at the Hidden Valley Trailhead, Dutchman Pass Trailhead, and Quo Vadis Trailhead: Interpretive opportunities in staging areas and trailheads would increase. Constructing a parking lot with an interpretive kiosk at the Sutor Hills Trailhead would increase interpretive opportunities in that area. Parking lots could be used as staging areas and trailheads. Such a concentration of users would provide opportunities for interpretation.

Providing information throughout the City of Henderson, Las Vegas, and Boulder City would result in a major increase in offsite interpretive opportunities about the NCA's resources.

To Interpretation from Transportation (Alternative D)

Allowing licensed vehicle use on the existing Dutchman Pass Road, East-West Power Line Road, Quo Vadis Mine Road, Rattlesnake Canyon Road, and Sutor Hills Road would result in a major impact to interpretation. These seven roads provide more opportunities for interpretation than other alternatives. Closure of remaining roads would produce a minor impact, depending on the resources being interpreted. Such closures could eliminate interference to interpretation, but closed roads also would not be available for interpretation.

4.8 IMPACTS TO FACILITIES

Currently there are no existing facilities at the Sloan Canyon NCA. This section analyzes impacts to future facility development from the different management decisions.

4.8.1 Impacts to Facilities Under Common to All Alternatives

To Facilities from Wildland Fire Management (Common to All Alternatives)

Although the possibility for fire is low, using appropriate management responses protects aboveground facilities from fire-related damage and reduces the need for associated repair/replacement costs.

4.8.2 Impacts to Facilities Under Alternative A (No Action)

To Facilities from Recreation (No Action)

Continuing to allow hiking and equestrian use throughout the NCA without accommodating facilities could cause moderate to major increases in the amount of smaller, visitor-created parking areas dispersed throughout the NCA as visitor use increases over the long term. Continuing to allow mountain biking in the NCA, outside the Wilderness, without accommodating facilities could cause moderate to major increases in the amount of smaller, visitor-created parking areas dispersed throughout the NCA as visitor use increases over the long term. Areas where trails are developed could experience moderate to major increases in the amount of smaller, visitor-created parking areas as visitor use increases over the long term.

To Facilities from the North McCullough Wilderness Area (No Action)

Increased use of trails without provision of visitor facilities could cause moderate to major increases in the amount of visitor-created parking areas in areas easily accessible to the Wilderness, outside the boundary, as visitor use increases over the long term. Installing trailhead access signage without providing visitor parking facilities could cause moderate to major increases in the amount of visitor-created parking areas near access points as visitor use increases over the long term.

Sloan Canyon Petroglyph Site

Increased use of the Sloan Canyon Petroglyph Site without provision of visitor facilities could cause moderate to major increases in the amount of visitor-created parking areas. This impact would occur near the north and south access points of the canyon, as visitor use increases over the long term.

To Facilities from Transportation (No Action)

Designating no roads and routes for licensed motorized travel could cause moderate benefit by eliminating informal parking areas.

4.8.3 Impacts to Facilities Under Alternative B: Emphasize Natural Character

To Facilities from Recreation (Alternative B)

Impacts would be the same as in the No Action alternative (Alternative A) for hiking: Providing the opportunity could cause moderate to major increases in the amount of smaller, visitor-created parking areas dispersed throughout the NCA as visitor use increases over the long term. Allowing mountain biking along the City of Henderson's North McCullough Trail could cause moderate to major increases in the need for, maintenance of, and use of the Dutchman Pass facility over the long term. Additional design elements, including bike racks, could be needed at Dutchman Pass. Not designating trails in the NCA could reduce the

need for, use of, and maintenance of concentrated visitor facilities. However, moderate to major increases in the amount of smaller, visitor-created parking areas could occur over the long term as visitor use increases.

To Facilities from the North McCullough Wilderness Area (Alternative B)

Not constructing or designating hiking trails in the Wilderness could reduce the need for, use of, and maintenance of concentrated visitor facilities. However, increases in the amount of visitor-created parking areas outside the Wilderness boundary could occur over the long term as visitor use increases.

Sloan Canyon Petroglyph Site

Designating the wash in the canyon bottom as the north access to the Sloan Canyon would cause major increases in the need for, use of, and maintenance of the contact station. Because a large percentage of visitation to the NCA is anticipated to occur in Sloan Canyon, directed visitation to the north entrance and use of that entrance as the access control point would place higher demands on facility maintenance and repairs. Additional design elements—such as comfort stations, parking, interpretive exhibits, and service offerings—for directed visitation would be needed.

To Facilities from Cultural Resources (Alternative B)

Cultural resources surveys that comply with Section 106 of the NHPA would be completed as part of the facility design. Depending on the results, the survey could have minor impacts on the design and construction of facilities.

To Facilities from Visual Resources (Alternative B)

Designating the contact station and Hidden Valley Trailhead as VRM Class II would require moderate mitigation measures, including facility design and placement, to develop facilities in those areas.

To Facilities from Facilities (Alternative B)

Providing visitor facilities and reclaiming existing visitor-created parking areas would direct visitation to desired areas and could reduce the amount of dispersed parking. Resources such as cultural sites, plant habitat, tortoise habitat, soils, and hydrology patterns, located within or near the location for the contact station, Hidden Valley Trailhead, and Dutchman Pass Trailhead could restrict flexibility with regard to facility size and/or placement.

To Facilities from Transportation (Alternative B)

Prohibiting motorized vehicle use on all existing roads would reduce the amount of visitor-created parking areas throughout the NCA.

To Facilities from Vegetation Management (Alternative B)

Creating avoidance areas around Special Status Species would increase the potential for restrictions on placement of planned facilities, based on potential rosy two-tone beardtongue habitat.

To Facilities from Wildlife Management (Alternative B)

Permanent closures to protect wildlife could affect placement of new facilities. Establishing avoidance areas near Special Status Species habitats could restrict placement of new facilities or access roads.

4.8.4 Impacts to Facilities Under Alternative C: Moderate Developed Use

To Facilities from Recreation (Alternative C)

Designing an extensive trail system could cause moderate to major increases in the need for, use of, and maintenance of associated visitor facilities and parking areas as visitor use increases over the long term. Limiting hiking use to designated trails (13,123 acres) could cause moderate to major increases in the need for, use of, and maintenance of the visitor center, Hidden Valley Trailhead, Dutchman Pass Trailhead, and Quo Vadis Trailhead facilities as visitor use increases over the long term.

Designating horse trails and areas open to cross-country equestrian use (34,330 acres) could cause moderate to major increases in the need for, use of, and maintenance of the Hidden Valley Trailhead, Dutchman Pass Trailhead, and Quo Vadis Trailhead facilities over the long term. Additional design elements, such as horse trailer parking and horse tie-up areas, could be needed at these locations.

Restricting mountain biking to designated areas (5,236 acres) could cause moderate to major increases in the need for, use of, and maintenance of the Dutchman Pass Trailhead, Quo Vadis Trailhead, and Hidden Valley Trailhead over the long term. Additional design elements, such as bike racks, could be needed at those locations.

To Facilities from the North McCullough Wilderness Area (Alternative C)

Designating hiking trails (548 acres) for resource protection could cause moderate to major increases in design, use, and maintenance of facilities. Designating the wash in the canyon bottom from the visitor center at the north entrance to Sloan Canyon would increase the need for, use of, and maintenance of the visitor center. Additional design elements—such as comfort stations, parking, interpretive exhibits, and service offerings—for directed visitation could be required. Constructing a trail from the Hidden Valley Trailhead to the Sloan Canyon Petroglyph Site would increase the need for, use of, and maintenance of the Hidden Valley Trailhead. Additional design elements and services, such as comfort stations and adequate parking areas, could be required. Installing trailhead access signage and visitor information would cause moderate increases in the design, use, and maintenance of facilities near access points for entering the Wilderness. In areas

lacking facilities, moderate to major increases in the amount of visitor-created parking areas could occur over the long term as visitor use increases.

Sloan Canyon Petroglyph Site

As in Alternative B, designating the Sloan Canyon wash and the constructed rockfall bypass trail as the north access to the Sloan Canyon would cause major increases in the need for, use of, and maintenance of the visitor center. Because a large percentage of visitation to the NCA is expected to occur in Sloan Canyon, directed visitation to the north entrance and use of that entrance as the access control point would place higher demands on facility maintenance and repairs. Additional design elements—such as comfort stations, parking, interpretive exhibits, and service offerings—for directed visitation would be needed.

Construction of a trail from the Hidden Valley Trailhead to the Sloan Canyon Petroglyph Site could cause major increases in the need for, use of, and maintenance of the Hidden Valley Trailhead over the long term. Directed visitation would place higher demands on facility maintenance and repairs. Additional design elements—such as comfort stations, parking, and interpretive material—for directed visitation could be needed. Requiring all nonguided canyon visitors at the north entrance to Sloan Canyon to view an interpretative presentation could create a need for appropriate design elements at the visitor center.

To Facilities from Cultural Resources (Alternative C)

As in Alternative B, cultural resources surveys that comply with Section 106 of the NHPA would be completed as part of the facility design. Depending on the results, the survey could have minor impacts on the design and construction of facilities.

To Facilities from Facilities (Alternative C)

Developing a large visitor center as the main entrance to the Sloan Canyon Petroglyph Site with substantial interpretive, educational, and administrative elements would have a major impact on design requirements such as building sizes and uses. Infrastructure needs such as water and power could require advanced coordination with the City of Henderson, although the utility needs of the NCA would have minor impacts to the overall urban system.

As in Alternative B, providing visitor facilities and reclaiming existing visitor-created parking areas would direct visitation to desired areas and could reduce the amount of dispersed parking. Resources such as cultural sites, plant habitat, soils, and hydrology patterns located within or near the location for the Hidden Valley Trailhead and Dutchman Pass Trailhead could restrict flexibility with regard to facility size and/or placement. The Dutchman Pass Trailhead is within Clark County's air quality nonattainment area, and might need to be constructed to reduce fugitive dust.

Resources such as cultural sites, plant habitat, tortoise habitat, soils, and hydrology patterns located within or near the location for the Quo Vadis Trailhead could restrict flexibility with regard to facility size and/or placement.

To Facilities from Transportation (Alternative C)

Restricting public access to the Hidden Valley Road, Dutchman Pass Road, Quo Vadis Mine Road, and Rattlesnake Canyon Road would reduce the amount of visitor-created parking areas throughout the NCA. Improved road conditions would increase access and associated use of unimproved areas and planned facilities.

To Facilities from Wildlife Management (Alternative C)

Seasonal small-area closures to protect wildlife during critical life periods could delay new construction, increase restrictions, and/or temporarily hinder access to facilities. Permanent closures to protect wildlife could affect placement of new facilities. Establishing avoidance areas near Special Status Species habitats could restrict placement of new facilities or access roads.

4.8.5 Impacts to Facilities Under Alternative D: Emphasize Developed Uses

To Facilities from Recreation (Alternative D)

Designing an extensive trail system could cause moderate to major increases in the need for, use of, and maintenance of associated visitor facilities and parking areas as visitor use increases over the long term. Limiting hiking use to designated trails (15,493 acres) could cause moderate to major increases in the need for, use of, and maintenance of the visitor center and visitor contact stations at the Hidden Valley Trailhead, Dutchman Pass Trailhead, Quo Vadis Trailhead, and Sutor Hills Trailhead as visitor use increases over the long term.

Designating horse trails and areas open to cross-country equestrian use (39,231 acres) could cause moderate to major increases in the need for, use of, and maintenance of the visitor center and visitor contact stations at the Hidden Valley Trailhead, Dutchman Pass Trailhead, Quo Vadis Trailhead, and Sutor Hills Trailhead over the long term. Additional design elements, such as horse trailer parking and horse tie-up areas, might be needed at these locations.

Restricting mountain biking to designated areas (10,142 acres) could cause moderate to major increases in the need for, use of, and maintenance of the Hidden Valley Trailhead, Dutchman Pass Trailhead, Quo Vadis Trailhead, and Sutor Hills Trailhead over the long term. Additional design elements such as bike racks could be needed at these locations.

Developing a campground at the Hidden Valley Trailhead would cause moderate to major increases in use and maintenance of the Hidden Valley contact station and parking facility. Additional design elements and services, such as comfort stations and adequate parking area, might be needed.

To Facilities from the North McCullough Wilderness Area (Alternative D)

As in Alternative C, designating hiking trails for resource protection could cause moderate to major increases in the design, use, and maintenance of facilities. Designating the wash in the canyon bottom from the visitor center at the north entrance to Sloan Canyon would increase the need for, use of, and maintenance of the visitor center. Additional design elements—such as comfort stations, parking, interpretive exhibits, and service offerings—for directed visitation might be needed.

Constructing a trail from the Hidden Valley Trailhead to the Sloan Canyon Petroglyph Site would increase the need for, use of, and maintenance of the Hidden Valley Trailhead. Additional design elements and services, such as comfort stations and adequate parking areas, might be needed. Installing trailhead access signage and visitor information would cause moderate increases in the design, use, and maintenance of facilities near access points entering the Wilderness. In areas lacking facilities, moderate to major increases in the amount of visitor-created parking areas could occur over the long term as visitor use increases.

Sloan Canyon Petroglyph Site

As in Alternative C, designating the Sloan Canyon wash and the constructed rockfall bypass trail as the north access to the Sloan Canyon would cause major increases in the need for, use of, and maintenance of the visitor center. Because a large percentage of visitation to the NCA is expected to occur in Sloan Canyon, directed visitation to the north entrance and use of that entrance as the access control point would place higher demands on facility maintenance and repairs. Additional design elements—such as comfort stations, parking, interpretive exhibits, and service offerings—for directed visitation would be needed. Requiring all nonguided canyon visitors at the north entrance to Sloan Canyon to view an interpretative presentation could create a need for appropriate design elements at the visitor center.

Constructing a trail from the Hidden Valley Trailhead to the Sloan Canyon Petroglyph Site could cause major increases in the need for, use of, and maintenance of the Hidden Valley Trailhead over the long term. Directed visitation would place higher demands on facility maintenance and repairs. Additional design elements—such as comfort stations, parking, and interpretive material—for directed visitation might be needed.

To Facilities from Cultural Resources (Alternative D)

As in Alternative B, cultural resources surveys that comply with Section 106 of the NHPA would be completed as part of the facility design. Depending on the results, the survey could have minor impacts on the design and construction of facilities.

To Facilities from Visual Resources (Alternative D)

Designating Sutor Hills Trailhead as VRM Class II would require increased facility design and placement.

To Facilities from Facilities (Alternative D)

As in Alternative C, developing a large visitor center as the main entrance to the Sloan Canyon Petroglyph Site with substantial interpretive, educational, and administrative elements would have a major impact on design requirements such as building sizes and uses. Infrastructure needs such as water and power could require advanced coordination with the City of Henderson, although the utility needs of the NCA would have minor impacts to the overall urban system.

As in Alternative C, providing visitor facilities and reclaiming existing visitor-created parking areas would direct visitation to desired areas and could reduce the amount of dispersed parking. Resources such as cultural sites, plant habitat, soils, and hydrology patterns located within or near the location for the Hidden Valley Trailhead, Dutchman Pass Trailhead, and Quo Vadis Trailhead could restrict flexibility with regard to facility size and/or placement. The Dutchman Pass Trailhead is within Clark County's air quality nonattainment area and might need to be constructed to minimize fugitive dust.

Resources such as cultural sites, plant habitat, tortoise habitat, soils, and hydrology patterns located within or near the location for the Sutor Hills Trailhead could restrict flexibility with regard to facility size and/or placement. The location is within a nonattainment area, which could require construction restrictions and other mitigation measures, such as paving areas to reduce fugitive dust.

To Facilities from Transportation (Alternative D)

Restricting public access to the Hidden Valley Road, Dutchman Pass Road, Quo Vadis Mine Road, Rattlesnake Canyon Road, East-West Power Line Road, and Sutor Hills Road would reduce the amount of visitor-created parking areas throughout the NCA. Improved road conditions would increase access and associated use of unimproved areas and planned facilities.

To Facilities from Wildlife Management (Alternative D)

As in Alternative B, providing hiking the opportunity could cause moderate to major increases in the amount of smaller, visitor-created parking areas dispersed throughout the NCA as visitor use increases over the long term. Allowing mountain biking along the City of Henderson's North McCullough Trail could cause moderate to major increases in the need for, maintenance of, and use of the Dutchman Pass facility over the long term. Additional design elements, including bike racks, could be needed at Dutchman Pass. Not designating trails in the NCA could reduce the need for, use of, and maintenance of concentrated visitor facilities. However, moderate to major increases in the amount of smaller, visitor-created parking areas could occur over the long term as visitor use increases.

Closing areas only in response to critical threats to wildlife, using seasonal and site closures, could delay new construction, increase restrictions, and/or temporarily hinder access to facilities.

4.9 Impacts to Lands and Realty

There are approximately 44 ROWs on file in the NCA (BLM Draft Lands Report 2004). ROWs within the NCA are primarily for power lines, flood control facilities, access roads, and communications. Existing ROWs are mainly confined to the northern and eastern portions of the NCA. Valid existing rights are protected under the Sloan Canyon NCA Act. Issuance of new ROWs, permits, and leases may continue within the NCA under the Act, outside the Wilderness, if they benefit the purposes of the NCA.

4.9.1 Impacts to Lands and Realty Under Common to All Alternatives

To Lands and Realty from Wildlife Management (Common to All Alternatives)

Impacts from establishing a 0.25-mile avoidance area to protect artificial and natural waters could have minor restrictions on placement of new ROWs and could restrict access as well as maintenance activities on new ROWs.

To Lands and Realty from Wildland Fire Management (Common to All Alternatives)

Although the possibility for fire is low in the NCA, using appropriate management responses protects aboveground facilities from fire-related damage and reduces the need for associated repair or replacement costs.

4.9.2 Impacts to Lands and Realty Under Alternative A (No Action)

To Lands and Realty from Visual Resources (No Action)

Consistent with the requirements of the Sloan Canyon NCA Act, design and siting requirements imposed on ROWs and communicationsites from existing VRM classes would be maintained. Lands and realty actions probably would continue to be concentrated in VRM Class III and IV areas.

To Lands and Realty from Lands and Realty (No Action)

Considering authorization of new ROWs that meet the intent of the Sloan Canyon NCA Act on a case-by-case basis maintains the potential for issuance of ROWs. Considering applications for new communicationsites or amendments on a case-by-case basis maintains current conditions under the Sloan Canyon NCA Act and retains the ability to establish new communicationsites if they meet the intent of the Act. Authorizing film permits after National Environmental Policy Act analysis retains the ability to accommodate photography and filming.

To Lands and Realty from Transportation (No Action)

Designating no existing roads and routes for licensed motorized travel could produce a minor decrease in conflicts between ROW maintenance and other users, damage, or vandalism.

4.9.3 Impacts to Lands and Realty Under Alternative B: Emphasize Natural Character

To Lands and Realty from Visual Resources (Alternative B)

Removing the VRM Class IV category and converting the area to VRM Class III (5,568 acres) **would** impose minor additional design siting requirements on new or renewed ROWs, which could increase construction and maintenance costs. Removing the VRM Class IV category and converting more VRM Class III areas to Class II areas (28,117 acres) would impose moderate design and siting requirements on new or renewed ROWs, which could increase construction and maintenance costs and/or make such projects economically infeasible. There would be a moderate to major increase in new ROW requests denied as a result of a 68 percent increase in VRM Class II areas from the No Action alternative (Alternative A) unless they can meet VRM requirements.

To Lands and Realty from Lands and Realty (Alternative B)

Considering new and amended ROWs on case-by-case basis according to criteria that would benefit the NCA probably would limit additional ROW authorization. Establishing evaluation criteria for new ROWs could decrease the time of processing and clarify standards for ROW applicants.

To Lands and Realty from Transportation (Alternative B)

As in Alternative A (No Action), designating no existing roads and routes for licensed motorized travel could produce a minor decrease in conflicts between ROW maintenance and other users, damage, or vandalism.

To Lands and Realty from Vegetation Management (Alternative B)

Requiring new or amended ROW holders to improve or restore the natural condition of native species populations from long-term disturbance could increase installation costs. Evaluating sites for the presence of special status plants prior to disturbance could affect desired placement of new facilities or access roads, which could produce minor increases in costs associated with ROW actions.

To Lands and Realty from Wildlife Management (Alternative B)

Limiting ROW construction in known bighorn sheep lambing areas could restrict placement of new facilities and access roads (12,860 acres). Limiting surface disturbance in known lambing areas from January through May could delay new facilities construction and maintenance activity on new or amended ROWs.

Establishing avoidance areas in known nesting areas could restrict placement of new facilities and access roads (2,062 acres). Seasonally restricting ROW construction within a radius of occupied raptor nesting sites could delay maintenance activity on existing ROWs. Avoiding disturbance or development in areas of potential Special Status Species habitats could restrict placement, access, and maintenance of new and existing ROWs.

4.9.4 Impacts to Lands and Realty Under Alternative C: Moderate Developed Use

To Lands and Realty from Visual Resources (Alternative C)

As in Alternative B, removing the VRM Class IV category and converting the area to VRM Class III (6,596 acres) would impose minor additional design stipulations and siting requirements on ROWs, which could increase construction and maintenance costs. Removing the VRM Class IV category and converting more VRM Class III area to Class II (28,117 acres) would impose moderate design and siting requirements on ROWs, which could increase construction and maintenance costs and/or make such projects economically infeasible (Figure 2.23). There would be a moderate to major increase in new ROW requests denied as a result of a 68 percent increase in VRM Class II areas from the No Action alternative (Alternative A).

To Lands and Realty from Lands and Realty (Alternative C)

As in Alternative B, considering new and amended ROWs on case-by-case basis according to criteria that would benefit the NCA probably would limit additional ROW authorization. Establishing evaluation criteria for new ROWs could decrease the time of processing and clarify standards for ROW applicants.

Limiting film permits to designated trails and trailheads would retain the ability to accommodate filming under greater limitations. However, placing maximums of 15 people per permit would exclude the potential for larger film projects to occur.

To Lands and Realty from Transportation (Alternative C)

Restricting licensed vehicles to the Dutchman Pass Road, Quo Vadis Mine Road, and Rattlesnake Canyon Road could increase conflicts between ROW maintenance and other users and increase damage or vandalism on adjacent ROWs as visitation increases over the long term.

To Lands and Realty from Vegetation Management (Alternative C)

As in Alternative B, requiring new or amended ROW holders to improve or restore the natural condition of local native species populations from long-term disturbance could increase installation costs. Evaluating sites for the presence of special status plants prior to disturbance could affect desired placement of new facilities or access roads, which may increase costs associated with ROW actions.

To Lands and Realty from Wildlife Management (Alternative C)

Impacts would be the same as in Alternative B: Limiting ROW construction in known bighorn sheep lambing areas could restrict placement of new facilities and access roads (12,860 acres). Limiting surface disturbance in known lambing areas from January through May could delay new facility construction and maintenance activity on ROWs during that time period. Establishing avoidance areas in known nesting areas could restrict placement of facilities (2,062 acres). Avoiding disturbance in areas of potential Special Status Species habitat, including desert tortoise, could restrict placement, access, and maintenance of facilities.

Seasonally restricting ROW construction within a radius around occupied raptor nesting sites could delay facility construction and maintenance activity on ROWs. Restriction areas would be determined on a case-by-case basis and depend on factors such as species and nesting location. Seasonal small-area closures to protect wildlife during critical life periods could delay ROW construction and hinder access to new sites.

4.9.5 Impacts to Lands and Realty Under Alternative D: Emphasize Developed Uses

To Lands and Realty from Visual Resources (Alternative D)

As in Alternatives B and C, removing the VRM Class IV category and converting the area to VRM Class III (7,384 acres) would impose minor additional design stipulations and siting requirements on ROWs, which could increase construction and maintenance costs. Additional designation of VRM Class III areas in the western portion would slightly increase the potential for establishing new ROWs that benefit the NCA. Removing the VRM Class IV category and converting more VRM Class III areas to Class II (28,117 acres) would impose moderate design and siting requirements on ROWs, which could increase construction and maintenance costs and/or make such projects economically infeasible (Figure 2.33).

To Lands and Realty from Lands and Realty (Alternative D)

Impacts would be the same as in Alternatives B and C for ROW management: Establishing evaluation criteria for new and/or amended ROWs could decrease the time of processing and clarify standards for ROW applicants.

Limiting commercial film permits to designated trails and trailheads would retain the ability to accommodate commercial filming under greater limitations. Placing maximums of 25–50 people per permit would allow for both smaller and larger film projects to occur.

To Lands and Realty from Transportation (Alternative D)

Restricting licensed vehicles to the existing Dutchman Pass Road, Quo Vadis Mine Road, Rattlesnake Canyon Road, East-West Power Line Road, and Sutor Hills Road could increase conflicts between ROW maintenance

and other users and increase damage or vandalism on adjacent ROWs as visitation increases over the long term.

To Lands and Realty from Vegetation Management (Alternative D)

As in Alternatives B and C, requiring new or amended ROW holders to improve or restore the natural condition of local native species populations from long-term disturbances could increase installation costs. Evaluating sites for the presence of special status plants prior to disturbance could affect desired placement of new facilities or access roads, which may increase costs associated with ROW actions.

To Lands and Realty from Wildlife Management (Alternative D)

Closing areas only in response to critical threats to wildlife, using seasonal and site closures, could delay new ROW construction and temporarily hinder access to new sites.

Impacts to wildlife would be the same as in Alternatives B and C: Limiting ROW construction in known bighorn sheep lambing areas could restrict placement of new facilities and access roads (12,860 acres). Limiting surface disturbance in known lambing areas from January through May could delay new facility construction and maintenance activity on new or renewed ROWs during that time period. Establishing avoidance areas in known nesting areas could restrict placement of new facilities and access roads (2,062 acres). Avoiding disturbance or development in areas of potential Special Status Species habitats, including desert tortoise, would restrict placement, access, and maintenance of facilities.

Seasonally restricting ROW construction within a radius around occupied raptor nesting sites could delay facility construction and maintenance activity on ROWs. Restriction areas would be determined on a case-by-case basis and depend on factors such as species and nesting location. Seasonal small-area closures to protect wildlife during critical life periods could delay ROW construction and hinder maintenance of facilities.

4.10 Impacts to Transportation (Licensed Motorized Vehicles)

4.10.1 Impacts to Transportation Under Alternative A: No Action

To Transportation from Transportation (No Action)

Passage of the Sloan Canyon NCA Act closed all roads and routes in the NCA to public motorized vehicle use unless designated as open. No roads are designated under the No Action Alternative, which causes major long-term impacts to users accessing the interior portions of the northern part of the NCA. Existing dirt and powerline roads traditional used by visitors would be closed to public use.

4.10.2 Impacts to Transportation Under Alternative B: Emphasize Natural Character

To Transportation from Recreation (Alternative B)

The completion of the North McCullough and Anthem Trails would attract visitors to the North McCullough Road, when it is constructed, and have long-term impacts on the numbers of vehicles traveling the road.

To Transportation from Facilities (Alternative B)

Visitors would use the North McCullough Road, when it is constructed to access the Dutchman Pass Trailhead. Consequently, the trailhead would attract users and have long-term impacts on the numbers of vehicles traveling the road.

To Transportation from Transportation (Alternative B)

Passage of the Sloan Canyon NCA Act closed all roads and routes in the NCA to motorized vehicle use, unless designated as open. No existing roads are designated under the Alternative B, which causes major long-term impacts to users accessing the interior portions of the northern part of the NCA. Existing dirt and powerline roads traditional used by visitors would be closed for public use.

The City of Henderson's North McCullough Road, when constructed, would be open for public travel and would likely be heavily used to access the interior of the northern portion of the NCA.

4.10.3 Impacts to Transportation Under Alternative C: Moderate Developed Use

To Transportation from Recreation (Alternative C)

The completion of the North McCullough and Anthem Trails would attract visitors to the North McCullough Road, when it is constructed, and have long-term impacts on the numbers of vehicles traveling the road. The use of this road could also increase if additional trails and trailheads are constructed in the future.

Designating mountain bike and equestrian trail areas near the Quo Vadis trailhead could increase traffic on the designated roads.

To Transportation from Facilities (Alternative C)

Constructing trailheads and staging areas at Dutchman's Pass and Quo Vadis Mine would increase usage of the Dutchman Pass Road, the Quo Vadis Mine Road, and Rattlesnake Canyon Road. Currently, these roads

are infrequently used, but as NCA visitation increases, moderate impacts could occur due to user conflicts and road degradation.

To Transportation from Transportation (Alternative C)

Designating the Dutchman Pass Road, the Quo Vadis Mine Road, and Rattlesnake Canyon Road as open for licensed motorized vehicle travel would allow access to interior portions of the NCA. However, designating only these roads would likely have major impacts for road maintenance requirements and to structures and traffic control. In addition, conflicts between vehicles and hikers, bikers and other types of recreational users may increase.

The City of Henderson's North McCullough Road, when constructed, would be open for public travel and would likely be heavily used to access the interior of the northern portion of the NCA.

4.10.4 Impacts to Transportation Under Alternative D: Emphasize Developed Use

To Transportation from Recreation (Alternative D)

The completion of the North McCullough and Anthem Trails would attract visitors to the North McCullough Road, when it is constructed, and have long-term impacts on the numbers of vehicles traveling the road. The use of this road could also increase if additional trails and trailheads are constructed in the future.

Designating mountain bike, equestrian trail areas, and OHV designated routes near the Quo Vadis trailhead could increase traffic on the Dutchman Pass Road, the Quo Vadis Mine Road, and Rattlesnake Canyon Road.

To Recreation from Facilities (Alternative D)

Constructing trailheads and staging areas at Dutchman's Pass, Quo Vadis Mine, and Sutor Hills would increase usage of the Dutchman Pass Road, the Quo Vadis Mine Road, Rattlesnake Canyon and Sutor Hills Roads. Currently, these roads are infrequently used, but as NCA visitation increases, moderate impacts could occur due to user conflicts and road degradation.

Constructing a visitor contact station and campground in Hidden Valley would cause major increases in the use of the Hidden Valley Road.

To Transportation from Transportation (Alternative D)

Designating the Dutchman Pass Road, the Quo Vadis Mine Road, Rattlesnake Canyon Road, East-West Power Line Road, and Sutor Hills as open for licensed motorized vehicle travel would allow access to interior portions of the NCA. However, designating these roads would likely have major impacts for road

maintenance requirements and to structures and traffic control due to increased use. In the future, conflicts between vehicles and hikers, bikers and other types of recreational users may increase.

The City of Henderson's North McCullough Road, when constructed, would be open for public travel and would likely be heavily used to access the interior of the northern portion of the NCA.

4.11 Impacts to Vegetation Management

Impacts to vegetation, including Special Status Species and their habitats, are described in terms of an increase or decrease in disturbance (i.e., soil compaction, accelerated soil erosion, damage to biological soil crusts, removal of vegetation). This impact is a result of surface-disturbing or other disruptive activities (e.g., vehicle contact, construction of trails, road improvements, utility corridors, etc.). Associated impacts on the potential for establishment or spread of invasive plant species and the condition of the vegetation resource, including special status plant species, also are discussed.

4.11.1 Impacts to Vegetation Under Common to All Alternatives

To Vegetation from the North McCullough Wilderness Area (Common to All Alternatives)

Prohibiting motorized access to wildlife water (Project #4916) would result in localized decreased disturbance of vegetation from motorized vehicles and decreased establishment or spread of noxious or invasive weeds. Use of the minimum requirement/minimum tool analysis approach in response to wildfire could minimize disturbance of vegetation from wildfire response activities; however, if the minimum-tool approach proved to be inadequate for a particular wildfire, allowing the wildfire to grow larger, disturbance of vegetation would increase.

To Vegetation from Transportation (Common to All Alternatives)

Authorization of motorized vehicles for installing, maintaining, and reconstructing water development projects could result in increased disturbance of vegetation from trampling and increased establishment or spread of noxious or invasive weeds.

To Vegetation from Vegetation Management (Common to All Alternatives)

Under all management alternatives, any efforts to survey, monitor, and manage noxious or invasive plant species in the NCA would decrease establishment or spread of noxious or invasive weeds, which could indirectly increase habitat productivity, species diversity, and disease/pest resistance and result in long-term maintenance or improvement of the condition of vegetative resources (e.g., habitat productivity, species diversity, disease/pest resistance, percent cover, etc.). The degree of impact could be could be minor or major, depending on the level of eradication and prevention activities.

To Vegetation from Livestock Grazing (Common to All Alternatives)

Permitting livestock grazing in the Hidden Valley Allotment could result in minor localized increases in disturbance of vegetation (e.g., accelerated soil erosion, removal of vegetation, change in species composition) and establishment or spread of noxious or invasive weeds related to domestic animal use; however, the disturbance should be minimized by adherence to the Mojave-Southern Great Basin RAC Rangeland Health Standards and Guidelines for Livestock Grazing Management as well as allotment-specific objectives.

4.11.2 Impacts to Vegetation Under Alternative A: No Action

To Vegetation from Recreation (No Action)

Construction of trails within the NCA would result in loss of vegetation from clearing. However, avoiding trail development in sensitive resource areas would minimize impacts on sensitive vegetation habitat (e.g., Special Status Species habitat, areas prone to erosion, etc.). Restoration of unauthorized trails within the NCA would decrease the likelihood that these disturbed areas would become dominated by invasive plant species and would improve the condition of the vegetative resource in these areas by reducing fragmentation of the vegetation community and improving population viability over the long term.

Because no OHV roads or routes have been designated, OHV use currently is prohibited within the NCA, so no new disturbance of vegetation could occur.

To Vegetation from the North McCullough Wilderness Area (No Action)

Allowing permanent improvements within the North McCullough Wilderness Area could result in localized loss of vegetation if a previously undisturbed site is chosen, reducing the area's ability to reach preferred natural condition (PNC). Construction of trails within the Wilderness would result in loss of vegetation and compaction. However, avoidance of trail development in sensitive resource areas would minimize impacts on sensitive vegetation habitat (e.g., Special Status Species habitat, areas prone to erosion, etc.).

To Vegetation from Lands and Realty (No Action)

Although unlikely, authorization of ROWs would increase long-term disturbance (i.e., soil compaction, accelerated soil erosion, damage to biological soil crusts, removal of vegetation) of vegetation along routes; establishment or spread of noxious or invasive weeds along new routes also could increase. These impacts would indirectly decrease the potential for improvement of the condition of vegetative resources, specifically percent cover, in areas associated with new ROWs. Similarly, authorization of new communicationsites would result in a localized, long-term increase in disturbance (i.e., soil compaction, accelerated soil erosion, damage to biological soil crusts, removal of vegetation) of vegetation at new sites and associated access routes; establishment or spread of noxious or invasive weeds in these areas also could be increased.

To Vegetation from Vegetation Management (No Action)

Restoration of areas subject to surface disturbing activities, where feasible, would decrease the potential for the spread of noxious or invasive weeds (indirectly leading to changes in habitat productivity, species diversity, disease/pest resistance) and indirectly maintain the condition of the vegetative resources of the NCA. Allowing any collection, particularly commercial collection, of vegetation within the NCA could have localized moderate to major impacts in areas of likely collection (e.g., cholla gardens). This action also could indirectly result in decreased health of Special Status Species populations by increasing the incidence of unlawful collection.

To Vegetation from Wildlife Management (No Action)

Managing Special Status Species according to existing law, regulation, policy, and agreement would indirectly result in maintaining the condition of Special Status Species and their habitats (e.g., habitat productivity, habitat integrity, disease/pest resistance, etc.). Impacts could be negligible to minor. If avoided when conducting surface-disturbing activities, the condition of the Special Status Species and their habitats, particularly habitat integrity, also would be maintained. If not avoided, however, surface disturbance would cause impacts to Special Status Species populations and habitat, particularly habitat degradation and reduction of habitat.

4.11.3 Impacts to Vegetation Under Alternative B: Emphasize Natural Character

To Vegetation from Recreation (Alternative B)

Not constructing or designating hiking trails could decrease disturbance and associated establishment or spread of noxious or invasive weeds associated with their construction in most of the NCA, which also would maintain the existing condition of vegetative resources. However, disturbance associated with cross-country hiking could be increased in the NCA, depending on level of use. In addition, prohibiting camping or overnight use within the NCA would decrease disturbance and associated establishment or spread of noxious or invasive weeds in the area.

Closing the NCA to OHVs and mountain bike use would decrease disturbance of vegetation associated with these uses (i.e., soil compaction, accelerated soil erosion, damage to biological soil crusts, removal of vegetation), resulting in decreased establishment or spread of noxious or invasive weeds. This action also would indirectly maintain or improve the condition of vegetative resources through reduction of fragmentation of existing habitat and maintenance of existing plant structure and percent cover, especially of species that are sensitive to trampling (i.e., white bursage). These impacts would be minor to moderate.

To Vegetation from the North McCullough Wilderness Area (Alternative B)

Prohibiting permanent facilities in the North McCullough Wilderness Area would eliminate new disturbance in the area and would result in decreased establishment or spread of noxious or invasive weeds in the area. In

addition, restoration of human-caused disturbances and alterations (e.g., establishment of noxious or invasive weeds) within the Wilderness would decrease the likelihood that disturbed areas would become dominated by invasive plant species, which could reduce past fragmentation of vegetation communities and move the area toward PNC. Constraints on the application of restoration efforts for human-caused disturbances and/or alterations with the Wilderness (i.e., use of hand tools only in restoration efforts, performance of work during low-visitation periods) would further decrease this likelihood.

Prohibiting camping or overnight use in the Wilderness would decrease disturbance and associated establishment or spread of noxious or invasive weeds in the area. However, impacts could still be moderate in popular day-use areas. Choosing not to construct hiking or equestrian trails in the Wilderness would decrease disturbance and associated establishment or spread of noxious or invasive weeds associated with their construction. Dispersal of recreation use that could otherwise result in social trails to other areas (using area closures, barriers, and visitor information) also would minimize disturbance associated with social trail use.

To Vegetation from Facilities (Alternative B)

Development of visitor facilities, including parking areas, would result in a permanent, localized loss of vegetation at development sites if previously undisturbed sites were chosen. Landscaping of developed areas using only plant species that are native to the NCA would reduce the spread or establishment of noxious or invasive species in these disturbed areas by reducing the potential spread of non-native species that can outcompete native species, preserving genetic diversity.

To Vegetation from Lands and Realty (Alternative B)

If applications for ROWs are considered on a case-by-case basis and a reduction in disturbance is a consideration of approval, disturbance associated with new and amended ROWs would be minimized and would likely result in only minor impacts.

To Vegetation from Vegetation Management (Alternative B)

Promotion of native plant communities and restoration of disturbed areas in all MEAs would decrease the potential for the spread of noxious or invasive weeds, which would directly result in increases in habitat productivity, species diversity, and disease and pest resistance of vegetation. However, allowing disturbed areas in the North McCullough Wilderness Area to be restored through natural processes would increase the likelihood that disturbed areas would become dominated by invasive plant species. Landscaping of all developed areas within the NCA using only plant species that are native to the NCA would result in enhanced long-term maintenance of the condition of the vegetative resources of the NCA by limiting the opportunity for non-native species to be established within the NCA.

Improving or restoring to natural conditions any surface disturbance in all MEAs that exceeds the thresholds of disturbance adversely affecting native plant communities would decrease the likelihood that disturbed areas would become dominated by invasive plant species; fragmentation of the vegetation community also would be reduced over the long term.* Setting the threshold of disturbance for nonmotorized MEAs to include short-term impacts would further decrease the likelihood that these areas would become dominated by invasive species.

Prohibiting casual and commercial collection of vegetation in the NCA could maintain or improve vegetative condition by retaining mature plants and seeds and preserving population viability and genetic diversity. Because unlawful collections could still occur, however, the impacts related to the prohibition of casual and commercial collection probably would be minor and localized.

Maintenance and protection of sensitive species habitats to ensure suitable habitat conditions and population viability and research and monitoring of Special Status Species would directly result in maintenance or improvement of the condition of Special Status Species and their habitats (e.g., habitat productivity, habitat integrity, disease/pest resistance, etc.). Improving Special Status Species habitat also tends to move vegetation communities toward PNC by reducing fragmentation, species diversity, and structural diversity and maintaining the long-term viability of the community. The impacts could be minor to moderate, depending on the level of effect. Avoiding special status vegetation species when conducting surface-disturbing activities would maintain the condition of the species and their habitats, particularly habitat integrity.

To Vegetation from Wildlife Management (Alternative B)

Avoiding disturbance or development in potential habitat of special status wildlife species would directly limit disturbance to the vegetation resource in those areas. The impacts on vegetation could be moderate.

4.11.4 Impacts to Vegetation Under Alternative C: Moderate Developed Use

To Vegetation from Recreation (Alternative C)

Allowing primitive and dispersed camping throughout the NCA, excluding the Sloan Canyon Petroglyph Site, could result in short-term impacts from removal or trampling of vegetation. Restrictions on camping could offset the degree of disturbance, however, and impacts probably would be minor.

As in Alternative A (No Action), construction of trails within the NCA would result in loss of vegetation because of clearing. However, avoiding trail development in sensitive resource areas would minimize impacts on sensitive vegetation habitat (e.g., Special Status Species habitat, areas prone to erosion, etc.). Restoration of unauthorized trails within the NCA would decrease the likelihood that these disturbed areas would become dominated by invasive plant species and would improve the condition of the vegetative resource in these areas by reducing fragmentation of the vegetation community and improving population viability over the long term.

As in Alternative B, closing the NCA to OHV and mountain bike use would decrease disturbance of vegetation associated with these uses (i.e., soil compaction, accelerated soil erosion, damage to biological soil crusts, removal of vegetation), resulting in decreased establishment or spread of noxious or invasive weeds. This action also would indirectly maintain or improve the condition of vegetative resources through reduction of fragmentation of existing habitat and maintenance of existing plant structure and percent cover, especially of species that are sensitive to trampling (i.e., white bursage). These impacts would be minor to moderate.

To Vegetation from the North McCullough Wilderness Area (Alternative C)

Developing permanent facilities within the North McCullough Wilderness Area would result in a potential localized loss of vegetation if a previously undisturbed site is chosen. Allowing only minimal permanent facilities would minimize this disturbance, however.

Restoration of human-caused disturbances and alterations (e.g., establishment of noxious or invasive weeds) within the Wilderness would decrease the likelihood that disturbed areas would become dominated by invasive plant species. Disturbance associated with restoration efforts would occur, however, if mechanized tools are used.

Allowing primitive and dispersed camping throughout the Wilderness, excluding the Sloan Canyon Petroglyph Site, could result in short-term impacts from removal or trampling of vegetation. Restrictions on camping could minimize disturbance, however, and impacts probably would be minor. Furthermore, designation of hiking and equestrian trails for resource protection would minimize disturbance to vegetation associated with use of trails. Construction of trails from Hidden Valley to the Sloan Canyon Petroglyph Site would result in loss of or damage to vegetation. Dispersal of recreation use that could otherwise result in social trails to other areas (using area closures, barriers, and visitor information) also would minimize disturbance associated with social trail use.

To Vegetation from Facilities (Alternative C)

As in Alternative B, development of visitor facilities, including parking areas, would result in a permanent localized loss of vegetation at development sites if previously undisturbed sites were chosen. However, these impacts would be larger because of the greater amount of disturbed area. Landscaping of developed areas using only plant species native to the NCA would reduce the spread or establishment of noxious or invasive species in these disturbed areas by reducing the potential spread of non-native species that can outcompete native species, preserving genetic diversity.

To Vegetation from Lands and Realty (Alternative C)

Impacts would be the same as in Alternative B: If applications for ROWs are considered on a case-by-case basis and a reduction in disturbance is a consideration of approval, disturbance associated with new and amended ROWs would be minimized and probably would result in only minor impacts.

To Vegetation from Vegetation Management (Alternative C)

As in Alternative B, promotion of native plant communities and restoration of disturbed areas in all MEAs would decrease the potential for the spread of noxious or invasive weeds, which would directly result in increases in habitat productivity, species diversity, and disease and pest resistance of vegetation. However, allowing disturbed areas in the North McCullough Wilderness Area to be restored through natural processes would increase the likelihood that disturbed areas would become dominated by invasive plant species. Landscaping of all developed areas within the NCA using only plant species that are native to the NCA would result in enhanced long-term maintenance of the condition of the vegetative resources of the NCA by limiting the opportunity for non-native species to be established within the NCA.

Improving or restoring to natural conditions any surface disturbance in all MEAs that exceeds the thresholds of disturbance adversely affecting native plant communities would decrease the likelihood that disturbed areas would become dominated by invasive plant species; fragmentation of the vegetation community also would be reduced over the long term. Setting the threshold of disturbance for nonmotorized MEAs to include short-term impacts would further decrease the likelihood that these areas would become dominated by invasive species.

Prohibiting casual and commercial collection of vegetation in the NCA could maintain or improve vegetative condition by retaining mature plants and seeds and preserving population viability and genetic diversity. Because unlawful collections could still occur, however, the impacts related to the prohibition of casual and commercial collection probably would be minor and localized.

Restoration and rehabilitation of disturbed areas in the North McCullough Wilderness Area using a minimum requirement/minimum tool analysis approach would decrease the likelihood that disturbed areas would become dominated by invasive plant species.

Minimizing impacts to native plant communities in all MEAs adversely affected by surface disturbance would decrease the potential for the spread of noxious or invasive weeds, but to a more limited degree than direct improvement or restoration of these areas. Setting the threshold of disturbance for nonmotorized MEAs to include short-term impacts would further decrease the likelihood that these areas would become dominated by invasive species. Allowing some collection, particularly commercial collection, of vegetation within the NCA, outside the Wilderness, would have minimal impacts.

Avoiding Special Status Species when conducting surface-disturbing activities would maintain the condition of these species and their habitats, particularly habitat integrity. Conversely, surface disturbance would cause impacts to Special Status Species populations and habitat, particularly habitat degradation and reduction of habitat.

To Vegetation from Wildlife Management (Alternative C)

Avoiding disturbance or development in habitats of special status wildlife species and mitigation of disturbance discovered in these areas would indirectly improve the condition of the vegetation resource in those areas. The impacts on these species would be moderate to major.

4.11.5 Impacts to Vegetation Under Alternative D: Emphasize Developed Uses

To Vegetation from Recreation (Alternative D)

Restoration of some unauthorized trails within the NCA would decrease the likelihood that these disturbed areas would become dominated by invasive plant species. Adoption of these trails into the trails system, along with associated weed management, also would minimize establishment of invasive species.

Allowing primitive and dispersed camping throughout the NCA, excluding the Sloan Canyon Petroglyph Site, could result in short-term impacts from removal or trampling of vegetation. Restrictions on camping could offset the degree of disturbance, however, and impacts probably would be minor. The campground near Hidden Valley would increase the amount of disturbed area, and increased visitation could cause removal or trampling of vegetation.

As in Alternative A (No Action), construction of trails within the NCA would result in loss of vegetation because of clearing. However, avoiding trail development in sensitive resource areas would minimize impacts on sensitive vegetation habitat (e.g., Special Status Species habitat, areas prone to erosion, etc.). Restoration of unauthorized trails within the NCA would decrease the likelihood that these disturbed areas would become dominated by invasive plant species and would improve the condition of the vegetative resource in these areas by reducing fragmentation of the vegetation community and improving population viability over the long term.

Designating routes for OHV and mountain bike use would decrease disturbance of vegetation associated with current uses (i.e., soil compaction, accelerated soil erosion, damage to biological soil crusts, removal of vegetation), resulting in decreased establishment or spread of noxious or invasive weeds. This action also would indirectly maintain or improve the condition of vegetative resources through reduction of fragmentation of existing habitat and maintenance of existing plant structure and percent cover, especially of species that are sensitive to trampling (i.e., white bursage). These impacts would be minor to moderate.

To Vegetation from the North McCullough Wilderness Area (Alternative D)

Developing permanent facilities within the North McCullough Wilderness Area would result in a potential localized loss of vegetation if a previously undisturbed site is chosen. Allowing only minimal permanent facilities would minimize this disturbance, however. Restoration of human-caused disturbances and alterations (e.g., establishment of noxious or invasive weeds) within the Wilderness would decrease the

likelihood that disturbed areas would become dominated by invasive plant species. Disturbance associated with restoration efforts would occur, however, if mechanized tools were used.

Allowing primitive and dispersed camping throughout the Wilderness, excluding the Sloan Canyon Petroglyph Site, could result in short-term impacts from removal or trampling of vegetation. Restrictions on camping could minimize disturbance, however, and impacts probably would be minor. Furthermore, designation of hiking and equestrian trails for resource protection would minimize disturbance to vegetation associated with use of trails. Construction of trails from Hidden Valley to the Sloan Canyon Petroglyph Site would result in loss of or damage to vegetation. Dispersal of recreation use that could otherwise result in social trails to other areas (using area closures, barriers, and visitor information) also would minimize disturbance associated with social trail use.

To Vegetation from Facilities (Alternative D)

As in Alternative C, As in Alternative B, development of visitor facilities, including parking areas, would result in a permanent localized loss of vegetation at development sites if previously undisturbed sites were chosen. However, these impacts would be larger because of the greater amount of disturbed area. Landscaping of developed areas using only plant species native to the NCA would reduce the spread or establishment of noxious or invasive species in these disturbed areas by reducing the potential spread of non-native species that can outcompete native species, preserving genetic diversity.

Impact to Vegetation from Lands and Realty (Alternative D)

Impacts would be the same as in Alternative B: If applications for ROWs are considered on a case-by-case basis and a reduction in disturbance is a consideration of approval, disturbance associated with new and amended ROWs would be minimized and probably would result in only minor impacts.

To Vegetation from Vegetation Management (Alternative D)

Impacts would be the same as in Alternative C as described below, except that restoration and rehabilitation of disturbed areas in the North McCullough Wilderness Area using an minimum requirement/minimum tool analysis approach would decrease the likelihood that disturbed areas would become dominated by invasive plant species.

Minimizing impacts to native plant communities in all MEAs adversely affected by surface disturbance would decrease the potential for the spread of noxious or invasive weeds, but to a more limited degree than direct improvement or restoration of these areas. Setting the threshold of disturbance for nonmotorized MEAs to include short-term impacts would further decrease the likelihood that these areas would become dominated by invasive species. Allowing some collection, particularly commercial collection, of vegetation within the NCA, outside the Wilderness, would have minimal impacts.

Avoiding Special Status Species when conducting surface-disturbing activities would maintain the condition of the species and their habitats, particularly habitat integrity. Conversely, surface disturbance would cause impacts to Special Status Species populations and habitat, particularly habitat degradation and reduction of habitat.

Allowing casual collection of vegetation within the NCA, outside the North McCullough Wilderness Area, could have localized, minor to moderate impacts on areas of likely collection (e.g., cholla gardens) by decreasing the number of mature plants and seeds and suppressing population viability and genetic diversity.

Avoiding Special Status Species when conducting surface-disturbing activities would maintain the condition of the species and their habitats, particularly habitat integrity. Conversely, surface disturbance would cause impacts to Special Status Species populations and habitat, particularly habitat degradation and reduction of habitat.

To Vegetation from Wildlife Management (Alternative D)

Avoiding disturbance or development in habitats of special status wildlife species and mitigation of disturbance discovered in these areas would indirectly improve the condition of the vegetation resource in those areas. Impacts on these species would be moderate to major.

4.12 Impacts to Wildlife Management

The NCA encompasses an ecologically diverse region with a variety of land forms, soil types, and vegetation communities. This variability creates habitat for numerous wildlife species, including mammals, birds, and reptiles. No known fish, mollusks, or amphibian species occur within the NCA. Management of wildlife includes not only general wildlife species and their habitat but species and habitat that are protected under the Endangered Species Act, species identified as Nevada BLM-sensitive species, or state species of concern.

The BLM would continue to manage wildlife habitat in coordination with NDOW, and it is assumed that sufficient habitat exists to maintain NDOW wildlife population management objectives. It is assumed that designated hiking trails within the NCA would receive greater overall visitor use than cross-country hiking areas because of their ease of use by a wider array of user types and their proximity to populated areas. It also is assumed that northern portions of the planning area would receive a greater amount of human use because of the close proximity of populated areas and available access.

4.12.1 Impacts to Wildlife Under Common to All Alternatives

To Wildlife from the North McCullough Wilderness Area (Common to All Alternatives)

The BLM would manage access to the existing North McCullough Slickrock Catchment #1 (Maintenance Project #4916, also known as the Poppy big game guzzler) in accordance with the Memorandum of

Understanding with NDOW (BLM 2003c), which would continue to sustain viable wildlife populations in the Wilderness.

To Wildlife from Facilities (Common to All Alternatives)

Development of a management program that strives to achieve a litter-free NCA would provide protection of sensitive wildlife populations, particularly desert tortoise, from introduction of new predators and/or non-native species that may be attracted to litter in the NCA. Because of the proximity of the NCA to the City of Henderson, an increased likelihood of illegal dumping and random litter deposition exists. Ravens, coyotes, and feral dogs and cats tend to be attracted to readily available food sources that can be contained in litter depositions. These species pose a threat to all wildlife populations within the NCA by preying on eggs and juveniles; they are of particular concern, however, to the desert tortoise. The common raven is the foremost predator of desert tortoise juveniles because of large increases in raven populations from increased food supplies near urban areas (e.g., roadkill, trash, and garbage dumps), as well as new sites for perches and nests (e.g., fences, buildings, power poles, and towers) (NPS 2004; Nature Conservancy and Nevada Field Office FWS 2002)

To Wildlife from Transportation (Common to All Alternatives)

Authorizing motorized vehicles for installing, maintaining, and reconstructing water development projects, including guzzlers, would maintain and/or enhance wildlife populations by ensuring a means to install and maintain water development projects.

To Wildlife from Vegetation Management (Common to All Alternatives)

Continuing ongoing efforts to map, monitor, and eradicate invasive plant species could minimize the spread of noxious or invasive species, which would result in long-term preservation of natural wildlife habitat characteristics within the NCA.

To Wildlife from Wildlife Management (Common to All Alternatives)

Maintaining or improving current and potential wildlife habitat toward full ecological potential would provide for long-term protection and/or improvement of wildlife habitat characteristics. Managing recreation development and construction, including trails, near wildlife water developments with a 0.25-mile avoidance area would greatly reduce potential wildlife displacement from or abandonment in areas where trails are located near sensitive wildlife habitat.

To Wildlife from Wildland Fire Management (Common to All Alternatives)

Providing fire suppression efforts commensurate with resource and adjacent property values at risk could preserve wildlife habitat characteristics.

To Wildlife from Livestock Grazing (Common to All Alternatives)

Management of the range consistent with the requirements of key perennial species would maintain wildlife habitat characteristics within the NCA.

4.12.2 Impacts to Wildlife Under Alternative A: No Action

To Wildlife from Recreation (No Action)

Overall management of the NCA through recreation opportunity spectrum classifications would provide for general preservation of wildlife habitat characteristics of the area through designations such as primitive and semi-primitive nonmotorized that dictate the location of roads and trails and general recreational use within the NCA. The exception to this management approach would be areas designated as roaded-natural. These areas could experience temporary localized disturbance of bighorn sheep, raptors, and other wildlife species from use of roads, trails, and dispersed camping.

Specific recreational activities (e.g., hiking, camping, and rock climbing) within the NCA could impact wildlife directly and indirectly. Direct effects to wildlife could include exploitation and disturbance; indirect effects could include habitat modification and pollution. Exploitation involves animal collection or immediate death from hunting; disturbance typically involves intentional or unintentional harassment of wildlife. Habitat modification typically is a more subtle impact that occurs from modifications of vegetation, soil, and water. Wildlife habitat also can be indirectly contaminated with discarded human food or foreign objects such as plastic/paper sacks (Knight and Gutzwiller 1995).

The type and magnitude of impacts on wildlife vary with the type of recreational activity. Mechanized forms of recreation, such as mountain biking, seem to present the most serious potential impacts through direct mortality, disturbance, noise, and habitat destruction (Boyle and Samson 1985). Not designating OHV routes would reduce indirect noise and disturbance from human presence in bighorn sheep lambing areas, raptor nesting areas, and other wildlife habitats. Direct mortality of animals from collisions would no longer occur.

Hiking, equestrian activities, and mountain biking can be extensive and have the ability to disrupt wildlife in many ways. The most common response of wildlife to these activities is displacement from an area; however, localized indirect effects to habitat from trampling of vegetation also are common. Displacement of wildlife from habitat generally is short term and varies between species and their sight distance/location to hikers, equestrians, or mountain bikers.

Hikers cause more severe response in desert bighorn sheep, compared to vehicles and mountain bikers, apparently because hikers are more likely to be in unpredictable locations and often approach sheep. This disturbance is of particular concern during lambing season and rut because it could have potential negative effects on reproductive fitness from displacement of females and lambs into habitat with less cover and/or water and prevent males from finding mates, as well as keeping ewes from water sources before and after

lambing. Bighorns showed evidence of becoming habituated to road traffic and may even habituate to hikers, but only if they remain in predictable locations on well-used trails (Papouchis et al. 2001).

Several studies have shown that raptors flush at the approach of humans, and some raptors also seem most sensitive when humans approach on foot. Generally, the effects of these responses are behavioral and short-lived (Knight and Gutzwiller 1995). The effects of high levels of human disturbance could include alteration of the distribution of raptors, disruption of nest attentiveness patterns, abandonment of breeding territories, reduced productivity, and effects on foraging behavior. Studies suggest that placing temporal and spatial restrictions on recreation activities could reduce affects to raptors, particularly during nesting periods (Knight and Skagen 1998). No studies could be found on the effects of hiking, equestrian activities, and mountain biking on reptiles.

Trampling typically causes simplification of vegetation and ground surface and compaction of soil result in loss of habitat.

Allowing hiking, equestrian, and mountain biking use throughout the NCA could result in temporary indirect disturbance on wildlife from dispersed human presence and may result in decreased reproductive fitness for bighorn sheep, alteration of raptor distribution and breeding, and alteration of wildlife habitat. The level of disturbance would depend on the amount of visitor use within the area and probably would be greater in the northern portions of the planning area because of increased access and proximity to populated areas.

The affects of dispersed camping are similar to, if not the same as, those from hiking, equestrian use, and mountain biking. Camping causes displacement of wildlife from human presence as well as trampling of vegetation. Allowing dispersed camping within the NCA, except the Wilderness, would result in localized disturbance of wildlife from extended human presence and possible alteration of habitat from trampling.

Rock climbing is particularly disturbing to bighorn sheep and raptor species because climbers access remote areas used by these species for sensitive life processes (lambing and nesting). Rock climbing impacts on raptor nesting can be severe, even when climbers do not have direct contact with eggs, young, or adults. This sport often involves shouting and other noises that are disturbing enough to raptors to keep them away from their nests (Richardson and Miller 1997). Rock climbers also choose routes that follow cracks—features that wildlife commonly use for breeding, foraging, and roosting. Rock climbers also use ledges as sites to belay other climbers. These same ledges also may be used by wildlife as nest or perch sites. Ledges and cracks also often support what little vegetation is found on cliffs, which provides perching, feeding areas, cover, and nesting sites for wildlife. Climbers often remove this vegetation because it hinders their climbing abilities (Knight and Gutzwiller 1995). Allowing rock climbing throughout the NCA would result in localized disturbance from human presence in bighorn lambing and raptor nesting areas, which may result in displacement of these species from their habitat.

Although information on how wildlife reacts to hikers and dogs is limited, preliminary evidence suggests that the presence of dogs increases the response area of influence, flush distance, and distance moved also appear

to be greater when hiker/dog activity occurs off trail versus on trail, because of the sporadic nature of off-trail activities that do not allow wildlife to habituate to them (Miller et al. 2001). Allowing unleashed dogs within the NCA could result in disturbance of wildlife by dogs, causing temporary displacement of wildlife from habitat or possible harm to wildlife. Hunting dogs are exempt from leash requirements.

Constructing new trails on an as-needed, case-by-case basis initially could result in increased disturbance to wildlife from increased, concentrated human presence in areas of trail construction, depending on the location of trails relative to sensitive wildlife habitat. It is likely that after a period of time, disturbance would decrease as wildlife becomes habituated to human presence on the new trail. Designating trails within the NCA also would be likely to reduce disturbance from human presence through habituation of wildlife from concentrated use. Trail construction also could introduce natural predators and noxious or invasive weeds into new areas within the NCA, which could affect wildlife populations, cause wildlife displacement from the NCA, or result in modification of wildlife forage base.

To Wildlife from Sloan Canyon Petroglyph Site Management (No Action)

Managing visitation within the NCA, including visitor use of the Sloan Canyon Petroglyph Site, according to existing law, regulation, and policy could result in temporary indirect disturbance to nesting raptors from increased concentrated human presence near raptor nesting and fledging areas.

To Wildlife from the North McCullough Wilderness Area (No Action)

As in the No Action alternative (Alternative A) for recreation, Allowing hiking, equestrian, and mountain biking use throughout the NCA could result in temporary indirect disturbance on wildlife from dispersed human presence and may result in decreased reproductive fitness for bighorn sheep, alteration of raptor distribution and breeding, and alteration of wildlife habitat. The level of disturbance would depend on the amount of visitor use within the area and probably would be greater in the northern portions of the planning area because of increased access and proximity to populated areas.

The affects of dispersed camping are similar to, if not the same as, those from hiking, equestrian use, and mountain biking. Camping causes displacement of wildlife from human presence as well as trampling of vegetation. Allowing dispersed camping within the NCA, except the Wilderness, would result in localized disturbance of wildlife from extended human presence and possible alteration of habitat from trampling.

Rock climbing is particularly disturbing to bighorn sheep and raptor species because climbers access remote areas used by these species for sensitive life processes (lambing and nesting). Rock climbing impacts on raptor nesting can be severe, even when climbers do not have direct contact with eggs, young, or adults. This sport often involves shouting and other noises that are disturbing enough to raptors to keep them away from their nests (Richardson and Miller 1997). Rock climbers also choose routes that follow cracks—features that wildlife commonly use for breeding, foraging, and roosting. Rock climbers also use ledges as sites to belay other climbers. These same ledges also may be used by wildlife as nest or perch sites. Ledges and cracks also

often support what little vegetation is found on cliffs, which provides perching, feeding areas, cover, and nesting sites for wildlife. Climbers often remove this vegetation because it hinders their climbing abilities (Knight and Gutzwiller 1995). Allowing rock climbing throughout the NCA would result in localized disturbance from human presence in bighorn lambing and raptor nesting areas, which may result in displacement of these species from their habitat.

Although information on how wildlife reacts to hikers and dogs is limited, preliminary evidence suggests that the presence of dogs increases the response area of influence, flush distance, and distance moved also appear to be greater when hiker/dog activity occurs off trail versus on trail, because of the sporadic nature of off-trail activities that do not allow wildlife to habituate to them (Miller et al. 2001). Allowing unleashed dogs within the NCA could result in disturbance of wildlife by dogs, causing temporary displacement of wildlife from habitat or possible harm to wildlife. Hunting dogs are exempt from leash requirements.

Constructing new trails on an as-needed, case-by-case basis initially could result in increased disturbance to wildlife from increased, concentrated human presence in areas of trail construction, depending on the location of trails relative to sensitive wildlife habitat. It is likely that after a period of time, disturbance would decrease as wildlife becomes habituated to human presence on the new trail. Designating trails within the NCA also would be likely to reduce disturbance from human presence through habituation of wildlife from concentrated use. Trail construction also could introduce natural predators and noxious or invasive weeds into new areas within the NCA, which could affect wildlife populations, cause wildlife displacement from the NCA, or result in modification of wildlife forage base.

To Wildlife from Cultural Resources (No Action)

Managing cultural sites under Section 106 and appropriate guidance when these sites are threatened by land-disturbing activities could result in long-term protection of wildlife habitat characteristics because of the nature of preservation of the location and integrity of cultural sites.

To Wildlife from Visual Resources (No Action)

Designating the Wilderness as VRM Class I would result in long-term preservation of wildlife habitat characteristics, including protection of raptor nesting habitat, because the definition of VRM Class I does not allow modification to the existing landscape.

To Wildlife from Lands and Realty (No Action)

Authorization of ROWs or amendments, on a case-by-case basis, could result in direct loss of wildlife habitat, depending on the nature and location of any new ROW granted. Consideration of applications on a case-by-case basis for new communicationsites, if such sites can be shown to benefit the purposes of the NCA, could result in a long-term loss of wildlife habitat from construction of communicationsites and disturbance of wildlife from site maintenance, depending on their location relative to sensitive habitat areas.

To Wildlife from Transportation (No Action)

Closing all existing roads and routes to licensed motorized travel would provide a beneficial impact to wildlife because of decreased visitor use in the NCA.

To Wildlife from Vegetation Management (No Action)

Rehabilitating, reclaiming, or revegetating areas subjected to surface disturbing activities, where feasible, would result in long-term restoration of wildlife habitat.

To Wildlife from Wildlife Management (No Action)

When reptile collectors destroy rock outcrops through use of tools such as crowbars and hydraulic jacks, loss of these habitats affect all species that use them, not just the individuals collected, resulting in overall decreases in abundance in species such as reptiles, small mammals, and certain birds (Goode et al. 2003). Allowing casual and commercial collection of reptiles within the NCA consistent with existing law, regulations, and policy could result in decreases in abundance of species, depending on level of collection activity and methods employed for collection, because of lack of restrictions on collection methods.

4.12.3 Impacts to Wildlife Under Alternative B: Emphasize Natural Character

To Wildlife from Recreation (Alternative B)

Designation of an additional 7,621 acres as a semi-primitive nonmotorized MEA would result in an increase in preservation of wildlife habitat characteristics in the NCA from avoidance of facility construction and prohibition of motorized use.

Closing the entire NCA to OHV use would result in long-term preservation of habitat characteristics and elimination of direct mortality of animals as well as indirect noise and disturbance from human presence associated with OHV use. Closing the entire NCA, except within the North McCullough Road and trail ROW, to equestrian use would result in elimination of vegetation trampling and disturbance from human presence. Closing the entire NCA, except within the Anthem Trail ROW (ROW # 76312) and the North McCullough Road and trail ROW (ROW # 65874), to mountain biking would result in elimination of vegetation trampling and disturbance from human presence.

No designation of trails within the NCA would result in increased effects of human disturbance on wildlife compared to the No Action alternative (Alternative A) because wildlife would not become habituated to human presence. The level of disturbance would depend on the amount of visitor use in the area and probably would be greater in the northern portions of the planning area because of increased access and proximity to populated areas.

Closing the entire NCA to camping or overnight use would result in elimination of vegetation trampling and effects of human disturbance on wildlife. Closing the NCA to all forms of rock climbing would result in elimination of human disturbance on wildlife, particularly in bighorn sheep lambing and raptor nesting areas. Prohibiting dogs within the NCA would result in elimination of harassment of wildlife by dogs.

To Wildlife from Sloan Canyon Petroglyph Site Management (Alternative B)

Limiting visitor use of the Sloan Canyon Petroglyph Site to the canyon bottom (no rock climbing or other uses inside the canyon) would reduce overall effects of human disturbance on wildlife compared to the No Action alternative (Alternative A), although it could still result in temporary indirect noise and disturbance to nesting raptors from increased visitor use.

To Wildlife from the North McCullough Wilderness Area (Alternative B)

As in Alternative A, allowing hiking throughout the NCA could result in temporary indirect disturbance on wildlife from dispersed human presence and may result in decreased reproductive fitness for bighorn sheep, alteration of raptor distribution and breeding, and alteration of wildlife habitat. The level of disturbance would depend on the amount of visitor use within the area and probably would be greater in the northern portions of the planning area because of increased access and proximity to populated areas.

Prohibiting equestrian use, biking, rock climbing and other recreational uses will have moderate reduce the impacts from these wildlife-disturbing activities.

To Wildlife from Cultural Resources (Alternative B)

As in Alternative A, managing cultural sites under Section 106 and appropriate guidance when these sites are threatened by land-disturbing activities could result in long-term protection of wildlife habitat characteristics because of the nature of preservation of the location and integrity of cultural sites.

To Wildlife from Visual Resources (Alternative B)

Impacts would be the same as in No Action alternative (Alternative A) for designating the Wilderness as VRM Class I. Designating the Wilderness as VRM Class I would result in long-term preservation of wildlife habitat characteristics, including protection of raptor nesting habitat, because the definition of VRM Class I does not allow modification to the existing landscape.

In addition, an increase of 11,379 acres in the area designated as VRM Class II would further protect bighorn sheep lambing areas and other wildlife habitat through a low level of change to the characteristic landscape.

To Wildlife from Facilities (Alternative B)

Construction of a contact station near the NCA boundary at the north entrance to Sloan Canyon, a gravel parking lot suitable for 10 cars at the NCA boundary at the Hidden Valley Trailhead, and a gravel parking lot suitable for 20 cars near the northeastern boundary of the NCA at the Dutchman Pass Trailhead would result in minor permanent loss of sparse creosote/grassland habitat, which is common in the NCA. Increased human presence in these areas would result in minimal disturbance to wildlife because of their location near the NCA boundary, outside of sensitive wildlife habitat.

To Wildlife from Lands and Realty (Alternative B)

Impacts would be the same as in the No Action alternative (Alternative A) for new ROWs: authorization of ROWs or amendments, on a case-by-case basis, could result in direct loss of wildlife habitat, depending on the nature and location of any new ROW granted. Consideration of applications on a case-by-case basis for new communicationsites, if such sites can be shown to benefit the purposes of the NCA, could result in a long-term loss of wildlife habitat from construction of communicationsites and disturbance of wildlife from site maintenance, depending on their location relative to sensitive habitat areas.

No authorization of new communication sites would result in elimination of possible loss of habitat and disturbance from site maintenance.

To Wildlife from Transportation (Alternative B)

Closing all existing roads and routes to motorized use would result in long-term reduction of localized indirect noise and human disturbance to wildlife from licensed motorized vehicles compared to the No Action alternative (Alternative A).

To Wildlife from Vegetation Management (Alternative B)

Managing vegetation in all MEAs to promote native plant communities and restore the plant productivity of disturbed areas through rehabilitation or revegetation would result in long-term restoration of wildlife habitat.

To Wildlife from Wildlife Management (Alternative B)

Prohibiting casual and commercial collection of reptiles and any surface disturbance associated with this collection would eliminate potential decreases in wildlife abundance.

4.12.4 Impacts to Wildlife Under Alternative C: Moderate Developed Use

To Wildlife from Recreation (Alternative C)

Designation of an additional 4,359 acres as semi-primitive nonmotorized MEA would result in increased preservation of wildlife habitat characteristics in the NCA because of avoidance of facility construction and prohibition of motorized use.

Impacts would be similar to those in Alternative B for cross-country hiking in the majority of the NCA. Limiting hiking to designated trails in areas bordering the northwestern portion of the NCA where there is increased access and proximity to populated areas would reduce effects on wildlife by concentrating human presence, as well as the likelihood that wildlife could become habituated to humans in these areas. The level of disturbance would depend on the location of a designated trail relative to sensitive wildlife habitat and the amount of visitor use on designated trails.

Impacts would be similar to those from the No Action alternative (Alternative A) for allowing cross-country equestrian use in the majority of the NCA. Limiting equestrian use to designated trails in the northern portion of the NCA where there is increased access and proximity to populated areas would reduce effects on wildlife by concentrating human presence, as well as the likelihood that wildlife could become habituated to humans in these areas. The location of the designated area is outside the majority of sensitive bighorn lambing and raptor nesting areas.

Construction of a trail system to accommodate multiple trail uses in appropriate portions of the NCA would result in impacts on wildlife similar to those described under the No Action alternative (Alternative A); however, facilities associated with the trail system might result in a slight increase in human disturbance to wildlife from concentrated human presence.

Limiting mountain biking to designated multiple-use trails and vehicle roads would result in a large reduction in effects on wildlife from vegetation trampling and human disturbance compared to the No Action alternative (Alternative A). Limiting primitive and dispersed camping to the southern portion of the NCA would result in a reduction of impacts of vegetation trampling and human disturbance. Limiting bouldering and traditional rock climbing (no permanent anchors) to areas outside sensitive resource areas in the NCA would result in a large reduction of human disturbance effects on wildlife, particularly in bighorn sheep lambing and raptor nesting areas. Allowing dogs outside the Sloan Canyon Petroglyph Site, on a leash and attached to their owner, would result in a reduction of harassment by dogs on wildlife.

As in Alternative B, closing the entire NCA to OHV use would result in long-term preservation of habitat characteristics and elimination of direct mortality of animals and indirect noise and disturbance from human presence associated with OHV use.

To Wildlife from Sloan Canyon Petroglyph Site Management (Alternative C)

Limiting visitor use of the Sloan Canyon Petroglyph Site to the canyon bottom and a limited number of designated trails and construction of a trail from the north entrance and a trail from the Hidden Valley Trailhead to the Sloan Canyon Petroglyph Site would reduce overall effects of human disturbance on wildlife compared to the No Action alternative (Alternative A). However, such action could still result in temporary indirect noise and disturbance to nesting raptors from increased visitor use. Construction also could result in introduction of noxious or invasive weeds that could result in modification of wildlife forage base.

To Wildlife from the North McCullough Wilderness Area (Alternative C)

As in Alternative A, allowing hiking and equestrian use throughout the Wilderness could result in temporary indirect disturbance on wildlife from dispersed human presence and may result in decreased reproductive fitness for bighorn sheep, alteration of raptor distribution and breeding, and alteration of wildlife habitat. The level of disturbance would depend on the amount of visitor use within the area and probably would be greater in the northern portions of the planning area because of increased access and proximity to populated areas.

Requiring dogs to be on leash would reduce the wildlife disturbance.

To Wildlife from Cultural Resources (Alternative C)

As in the No Action alternative (Alternative A), managing cultural sites under Section 106 and appropriate guidance when these sites are threatened by land-disturbing activities could result in long-term protection of wildlife habitat characteristics because of the nature of preserving the location and integrity of cultural sites.

To Wildlife from Visual Resources (Alternative C)

Impacts would be the same as in the No Action alternative (Alternative A) for designating the Wilderness as VRM Class I. In addition, an increase of 10,351 acres in area designated as VRM Class II would further protect bighorn lambing areas and other wildlife habitat through a low level of change to the characteristic landscape.

To Wildlife from Facilities (Alternative C)

Construction of a visitor center near the NCA boundary at the north entrance to Sloan Canyon, a gravel parking lot suitable for 15 cars inside the NCA boundary at the Hidden Valley Trailhead, a gravel parking lot suitable for 30 cars and an equestrian staging area near the northeastern boundary of the NCA at the Dutchman Pass Trailhead, and a ½-acre gravel parking lot at the Quo Vadis Trailhead would result in minor permanent loss of sparse creosote/grassland habitat, which is common in the NCA. Increased human presence in these areas would result in minimal disturbance because of their location near the NCA boundary, outside sensitive wildlife habitat.

To Wildlife from Lands and Realty (Alternative C)

As in Alternative B, impacts would be the same as in the No Action alternative (Alternative A) for new ROWs. No authorization of new communicationsites would result in elimination of possible loss of habitat and disturbance from site maintenance.

To Wildlife from Transportation (Alternative C)

Effects of licensed motorized vehicles on wildlife would be similar to those described under Alternative B. Allowing licensed motorized vehicle use only on the Dutchman Pass Road, Quo Vadis Mine Road, and Rattlesnake Canyon Road also would result in long-term reduction of localized indirect noise and disturbance to wildlife from reduced traffic on these roads compared to the No Action alternative (Alternative A).

To Wildlife from Vegetation Management (Alternative C)

As in Alternative B, managing vegetation in all MEAs to promote native plant communities and restore the plant productivity of disturbed areas through rehabilitation or revegetation would result in long-term restoration of wildlife habitat.

Impacts from Wildlife Management (Alternative C)

Prohibiting commercial collection of reptiles and any surface disturbance associated with this collection would reduce potential decreases in wildlife abundance.

4.12.5 Impacts to Wildlife Under Alternative D: Emphasize Developed Uses

To Wildlife from Recreation (Alternative D)

Designation of an additional 2,184 acres as semi primitive nonmotorized MEA would result in increased preservation of wildlife habitat characteristics in the NCA from avoidance of facility construction and prohibition of motorized use. Impacts would be the same as in the No Action alternative (Alternative A) for areas designated as roaded-natural. Designating a limited number of OHV routes would result in long-term preservation of habitat characteristics and reduction of direct mortality of animals and indirect noise and disturbance from human presence associated with OHV use.

Impacts would be the same as in Alternative C for hiking, except that adding an additional 2,370 acres, limited to designated trails, would further reduce overall effects on wildlife from vegetation trampling and human disturbance. Impacts would be the same as in Alternative B for equestrian use, except that adding an additional 9,196 acres, limited to designated trails, would further reduce overall effects on wildlife from vegetation trampling and human disturbance. As in Alternative A (No Action), allowing unleashed dogs within the NCA could result in disturbance of wildlife by dogs, causing temporary displacement of wildlife from habitat or possible harm to wildlife. Hunting dogs are exempt from leash requirements.

To Wildlife from Sloan Canyon Petroglyph Site Management (Alternative D)

Limiting visitor use of the Sloan Canyon Petroglyph Site to the canyon bottom and a limited number of designated trails and construction of a trail from the north entrance and a trail from the Hidden Valley Trailhead to the Sloan Canyon Petroglyph Site would reduce overall effects of human disturbance on wildlife compared to the No Action alternative (Alternative A). However, these actions could still result in temporary indirect noise and disturbance to nesting raptors from increased visitor use. Construction also could result in introduction of noxious or invasive weeds that may result in modification of wildlife forage base.

To Wildlife from the North McCullough Wilderness Area (Alternative D)

As in the No Action alternative (Alternative A) for recreation, Allowing hiking, equestrian, and mountain biking use throughout the NCA could result in temporary indirect disturbance on wildlife from dispersed human presence and may result in decreased reproductive fitness for bighorn sheep, alteration of raptor distribution and breeding, and alteration of wildlife habitat. The level of disturbance would depend on the amount of visitor use within the area and probably would be greater in the northern portions of the planning area because of increased access and proximity to populated areas.

The affects of dispersed camping are similar to, if not the same as, those from hiking, equestrian use, and mountain biking. Camping causes displacement of wildlife from human presence as well as trampling of vegetation. Allowing dispersed camping within the NCA, except the Wilderness, would result in localized disturbance of wildlife from extended human presence and possible alteration of habitat from trampling.

Rock climbing is particularly disturbing to bighorn sheep and raptor species because climbers access remote areas used by these species for sensitive life processes (lambing and nesting). Rock climbing impacts on raptor nesting can be severe, even when climbers do not have direct contact with eggs, young, or adults. This sport often involves shouting and other noises that are disturbing enough to raptors to keep them away from their nests (Richardson and Miller 1997). Rock climbers also choose routes that follow cracks—features that wildlife commonly use for breeding, foraging, and roosting. Rock climbers also use ledges as sites to belay other climbers. These same ledges also may be used by wildlife as nest or perch sites. Ledges and cracks also often support what little vegetation is found on cliffs, which provides perching, feeding areas, cover, and nesting sites for wildlife. Climbers often remove this vegetation because it hinders their climbing abilities (Knight and Gutzwiller 1995). Allowing rock climbing throughout the NCA would result in localized disturbance from human presence in bighorn lambing and raptor nesting areas, which may result in displacement of these species from their habitat.

Although information on how wildlife reacts to hikers and dogs is limited, preliminary evidence suggests that the presence of dogs increases the response area of influence, flush distance, and distance moved also appear to be greater when hiker/dog activity occurs off trail versus on trail, because of the sporadic nature of off-trail activities that do not allow wildlife to habituate to them (Miller et al. 2001). Allowing unleashed dogs

within the NCA could result in disturbance of wildlife by dogs, causing temporary displacement of wildlife from habitat or possible harm to wildlife. Hunting dogs are exempt from leash requirements.

Constructing new trails on an as-needed, case-by-case basis initially could result in increased disturbance to wildlife from increased, concentrated human presence in areas of trail construction, depending on the location of trails relative to sensitive wildlife habitat. It is likely that after a period of time, disturbance would decrease as wildlife becomes habituated to human presence on the new trail. Designating trails within the NCA also would be likely to reduce disturbance from human presence through habituation of wildlife from concentrated use. Trail construction also could introduce natural predators and noxious or invasive weeds into new areas within the NCA, which could affect wildlife populations, cause wildlife displacement from the NCA, or result in modification of wildlife forage base.

To Wildlife from Cultural Resources (Alternative D)

As in the No Action alternative (Alternative A), managing cultural sites under Section 106 and appropriate guidance when these sites are threatened by land-disturbing activities could result in long-term protection of wildlife habitat characteristics because of the nature of preserving the location and integrity of cultural sites.

To Wildlife from Visual Resources (Alternative D)

Impacts would be the same as in the No Action alternative (Alternative A) for designating the Wilderness as VRM Class I. In addition, an increase of 9,563 acres in area designated as VRM Class II would further protect bighorn lambing areas and other wildlife habitat through a low level of change to the characteristic landscape.

To Wildlife from Facilities (Alternative D)

Construction of a multipurpose visitor center near the NCA boundary at the north entrance to Sloan Canyon; construction of a gravel parking lot suitable for 20 cars, visitor contact station, and 20-site dry campground at the south entrance to Sloan Canyon at the Hidden Valley Trailhead; construction of a hardened gravel parking lot suitable for 60 cars and an equestrian staging area near the northeastern boundary of the NCA at the Dutchman Pass Trailhead; construction of a gravel or paved parking lot large enough to accommodate vehicles pulling horse trailers at the Quo Vadis Trailhead; and construction of a gravel parking lot suitable for 5 cars at the Sutor Hills Trailhead would result in minor permanent loss of sparse creosote/grassland habitat, which is common in the NCA. Increased human presence in these areas would result in minimal disturbance because of their location near the NCA boundary, outside sensitive wildlife habitat.

To Wildlife from Lands and Realty (Alternative D)

As in Alternative B, impacts would be the same as in the No Action alternative (Alternative A) for new ROWs: authorization of ROWs or amendments, on a case-by-case basis, could result in direct loss of wildlife habitat, depending on the nature and location of any new ROW granted. Consideration of applications on a

case-by-case basis for new communication sites, if such sites can be shown to benefit the purposes of the NCA, could result in a long-term loss of wildlife habitat from construction of communication sites and disturbance of wildlife from site maintenance, depending on their location relative to sensitive habitat areas.

No authorization of new communication sites would result in elimination of possible loss of habitat and disturbance from site maintenance.

To Wildlife from Transportation (Alternative D)

Effects of licensed motorized vehicles on wildlife would be similar to those described under Alternative B. Allowing licensed motorized vehicles on the majority of roads within the NCA would result in minor to moderate increased traffic; effects on wildlife would not be as great as those described under the No Action alternative (Alternative A), however.

To Wildlife from Vegetation Management (Alternative D)

As in Alternative B, managing vegetation in all MEAs to promote native plant communities and restore the plant productivity of disturbed areas through rehabilitation or revegetation would result in long-term restoration of wildlife habitat.

To Wildlife from Wildlife Management (Alternative D)

Prohibiting casual collection of reptiles within the North McCullough Wilderness Area and any surface disturbance associated with commercial collection would slightly reduce potential decreases in wildlife abundance.

4.13 Impacts to Air Quality

This section presents impacts to air quality from other management actions. This analysis is qualitative; however, if specific activities are proposed, at the implementation stage impacts to air quality would be compared to the National Ambient Air Quality Standards (NAAQS) or Nevada Ambient Air Quality Standards to ensure regulatory compliance and compliance with Clark County State Implementation Plans.

4.13.1 Impacts to Air Quality Under Common to All Alternatives

To Air Quality from Facilities (Common to All Alternatives)

Actions associated with construction and operations of facilities would be the most significant contributors. These activities would have to be conducted in compliance with Clark County State Implementation Plan (SIP) requirements and local dust control regulations.

To Air Quality from Lands and Realty (Common to All Alternatives)

The various construction activities authorized under lands and realty (e.g., communicationsites, transmission lines, etc.) produce emissions of PM_{10}. Soil disturbance and travel on unpaved roads are the main causes of these emissions. Tailpipe emissions from vehicular travel and emissions from equipment use also would occur. Minimal lands and reality activities are anticipated, however. All such activity would have to be in accordance with Clark County SIP and local dust control regulations.

To Air Quality from Transportation (Common to All Alternatives)

Use of heavy equipment on unpaved roads for administrative purposes would cause emissions of CO and precursors to ozone (O_3). Maintenance of unpaved roads and shoulders of paved resource roads would cause particulate matter emissions and tailpipe emissions. Of particular concern are emissions of particulate matter from road graders and heavy equipment operations. PM_{10} emissions from travel on unpaved roads and tailpipe emissions from vehicles would occur. These emissions would be considered short term and minor, however.

To Air Quality from Vegetation Management (Common to All Alternatives)

Trucks and heavy equipment (bulldozers, etc.) used in vegetation management and control would cause dust from unpaved roads. Areas receiving vegetation treatment would add short-term increases in PM_{10} until vegetation recovers sufficiently to stabilize exposed soil. These emissions would be considered minor, however, and vegetation activity utilizing heavy equipment would have to be conducted in accordance with Clark County SIP and local dust control regulations.

To Air Quality from Wildland Fire Management (Common to All Alternatives)

Wildland fires could cause short-term emissions of NO_x, SO_2, VOCs, PM_{10}, and CO that could be spread over large portions of the area, depending on the size of the fire and wind conditions. In addition, PM_{10}, CO, NO_x, and VOCs (which include hazardous air pollutants [HAPs]) could result from use of heavy equipment during fire suppression activities. These impacts would be minor and short-term in nature because fire risk within the NCA is minimal.

To Air Quality from Air Quality (Common to All Alternatives)

Impacts to air quality would result from activities causing exhaust emissions and fugitive dust. Upward trends in populations in close proximity to the NCA create the potential for additional increases in emissions.

Although mine land reclamation is not expected to occur, air emissions could be produced during such activities. During reclamation activities, PM_{10} emissions would be produced from soil excavations, wind erosion, and travel of heavy equipment over unpaved roads. Gaseous emissions from tailpipes (CO, NOx, SO_2, and VOCs) would occur from heavy equipment and vehicular travel.

To Air Quality from Abandoned Mines (Common to All Alternatives)

Although mine land reclamation is not expected to occur, air emissions could be produced during such activities. During reclamation activities, PM_{10} emissions would be produced from soil excavations, wind erosion, and travel of heavy equipment over unpaved roads. Gaseous emissions from tailpipes (CO, NO_x, SO_2, and VOCs) would occur from heavy equipment and vehicular travel.

4.14 Impacts to Livestock Grazing

Impacts to livestock grazing operations would occur if such actions disrupt livestock movement, result in loss of forage such that the livestock operator/permittee would have to reduce operations, or increase human disturbance/harassment of livestock. Most of the actions contained in the alternatives would not impact livestock operations. Actions that do impact livestock operations could have minor impacts, as described in this section.

4.14.1 Impacts to Livestock Grazing Under Alternative A: No Action

To Livestock Grazing from Recreation (No Action)

Recreation use near livestock grazing areas could cause minor incidents of disturbance to livestock and possible vandalism of associated grazing facilities. Although this possibility exists, recreation facilities are not located in close proximity to livestock, which greatly reduces the likelihood of such disturbance.

To Livestock Grazing from Vegetation Management (No Action)

Protection of special status plant species and their habitats occurring within the allotment would restrict livestock from grazing in those areas. However, because very few, if any, special status plant species currently exist within the allotment; the impacts would be negligible to minor.

To Livestock Grazing from Livestock Grazing (No Action)

New range improvements under this alternative would increase the amount of forage available to livestock by making more of the area accessible for grazing.

4.14.2 Impacts to Livestock Grazing Under Alternative B: Emphasize Natural Character

To Livestock Grazing from Recreation (Alternative B)

As in the No Action alternative (Alternative A) recreation use near livestock grazing areas could cause minor incidents of disturbance to livestock and possible vandalism of associated grazing facilities. Although this

possibility exists, recreation facilities are not located in close proximity to livestock, which greatly reduces the likelihood of such disturbance.

To Livestock Grazing from Vegetation Management (Alternative B)

Protection of special status plant species and their habitats occurring within the allotment would restrict livestock from grazing in those areas. However, because very few, if any, special status plant species currently exist within the allotment, the impacts would be negligible to minor.

To Livestock Grazing from Livestock Grazing (Alternative B)

Prohibiting salt and mineral placement within the NCA could decrease concentrated areas of livestock grazing within the NCA that are typically associated with salt and mineral placements.

4.14.3 Impacts to Livestock Grazing Under Alternative C: Moderate Developed Use

To Livestock Grazing from Vegetation Management (Alternative C)

Protection of special status plant species and their habitats occurring within the allotment would restrict livestock from grazing in those areas. However, because very few, if any, special status plant species currently exist within the allotment, the impacts would be negligible to minor.

To Livestock Grazing from Livestock Grazing (Alternative C)

Prohibiting salt and mineral placement within the NCA could decrease concentrated areas of livestock grazing within the NCA that are typically associated with salt and mineral placements. No new range improvements within the NCA could cause a negligible decrease in the amount of forage available to livestock.

4.14.4 Impacts to Livestock Grazing Under Alternative D: Emphasize Developed Uses

To Livestock Grazing from Vegetation Management (Alternative D)

Protection of special status plant species and their habitats occurring within the allotment would restrict livestock from grazing in those areas. However, because very few, if any, special status plant species currently exist within the allotment, the impacts would be negligible to minor.

To Livestock Grazing from Livestock Grazing (Alternative D)

Prohibiting salt and mineral placement within the NCA could decrease concentrated areas of livestock grazing within the NCA that are typically associated with salt and mineral placements. No new range improvements within the NCA could cause a negligible decrease in the amount of forage available to livestock.

4.15 Impacts to Socioeconomics and Environmental Justice

This section summarizes important socioeconomic impacts associated with resource management changes for the Sloan Canyon NCA. Socioeconomic impacts tend to result from the totality of management actions for a particular resource and alternative.

Along with wildlife, vegetation, and the physical environment, people are an integral part of ecosystems. Lifestyles, attitudes, beliefs, values, social structure, culture, and population characteristics affect, and are affected by, management actions such as those made by the BLM for the NCA. In addition, BLM lands and BLM management of these lands have emotional meanings to many people. The social and cultural impacts of the management alternatives are addressed qualitatively, using best professional judgment based on the available information.

Most socioeconomic impacts of the RMP alternatives are expected to be negligible or minor. Some moderate impacts could occur, depending on levels and types of use of the NCA. Some major impacts to particular visitor groups could occur under some alternatives. Some socioeconomic impacts would be negative relative to the status quo; others would be positive.

4.15.1 Impacts to Socioeconomics Under Common to All Alternatives

To Socioeconomics from Recreation and Facilities (Common to All Alternatives)

Demand for recreational use of the project area is highly likely to increase under all alternatives because of the following factors:

- Publication in local and regional tourist information media.
- The growing population of Clark County will result in increased demand.
- Loss of open space as Clark County grows will focus many recreational demands on remaining open spaces.
- Designation of the NCA will further attract recreational users. Notable aspects of the NCA, such as the Sloan Canyon Petroglyph Site and the presence of desert bighorn sheep, are likely to be special draws for visitation.

- The growing population of active senior (older than age 55) residents in the City of Henderson will place increased demands on the Sloan Canyon NCA.

- Development of lands close to the boundaries of the NCA will result in increased use from surrounding neighborhoods.

Without effective management of recreational use of the Sloan Canyon NCA, as demands increase so too will conflicts between visitors with different objectives and desires for different recreational experiences. Different management schemes could favor some types of recreation over others, however, resulting in reduced availability and quality of experience for some visitors. Development of facilities could improve the quality of the recreational experience and could draw visitors from outside Clark County, resulting in a net economic stimulus (increased income and employment).

Under all alternatives, fees could be charged in some areas of the NCA. Fees could have a minor impact on the ability of some individuals to use the NCA. Annual passes that reduce access costs for frequent users could be considered.

An important social impact of any management alternative will be the effect on Native American custom and culture. Tribes contacted for this assessment identified the Sloan Canyon Petroglyph Site as the only culturally significant area in the NCA. Increased recreational use of the site could impact the values Native Americans associated with the site.

To Socioeconomics from Lands and Realty (Common to All Alternatives)

The Sloan Canyon NCA Act recognizes existing rights and places limitations on new ROWs and amendments. Under all alternatives, existing communication ROWs would be renewed at the end of their term, and other existing ROW grants may be renewed at the end of their term. In either case the ROWs may be modified to meet the intent of the Sloan Canyon NCA Act. Existing communicationsites would remain as authorized. These management actions probably would maintain economic activity associated with the ROWs and could increase or decrease any conflicts with other user groups (e.g., aesthetic issues of communications sites for recreators seeking a primitive or semi-primitive experience), contingent on the locations and designs of the ROWs and any modifications.

To Socioeconomics from Livestock Grazing (Common to All Alternatives)

All alternatives provide for continued grazing use of the Hidden Valley Allotment. If the permittee voluntarily relinquishes grazing privileges, permits, or leases, however, the allotment would be closed to further livestock grazing. A minor reduction in opportunities for local ranchers to maintain the ranching culture and lifestyle would occur if the permit were retired.

4.15.2 Impacts to Socioeconomics Under Alternative A: No Action

To Socioeconomics from Recreation (No Action)

In the near term, maintaining the status quo for recreational management would maintain levels of satisfaction experienced by current users. At present, conflicts between visitors are thought to be fairly limited, in part because of the effects of terrain, access, and wilderness designation in segregating use. The northwestern portion of the NCA is largely used for hiking; the northeastern portion is used predominantly for unauthorized shooting and OHV riding; the North McCullough Wilderness Area is largely used for hiking, with some equestrian use; areas north, west, and south of the Wilderness receive some shooting and OHV use; and the southeastern portion of the NCA probably is used largely for hiking. As recreational demands on the NCA increase over time, however, conflicts between recreational uses are likely to increase. For instance, experiences of solitude and quiet enjoyment desired by some visitors would diminish as overall use increases. Reductions in visitor satisfaction because of these or other conflicts could be minor to major, contingent on numbers, types, and locations of use.

To Socioeconomics from Facilities (No Action)

Under this alternative, no contact stations or visitor centers and associated amenities would be developed. Opportunities to increase the quality of experience for various visitors therefore would be forgone. Furthermore, without facilities it is unlikely that the NCA would attract much visitation from outside Clark County. Therefore, net increases in income and employment in the study area economy from recreation at the NCA would be negligible.

To Socioeconomics from Lands and Realty (No Action)

Under the Sloan Canyon NCA Act, amendments and ROWs and new communicationsites would be considered on a case-by-case basis. Film permits would be authorized after adequate National Environmental Policy Act analysis. These actions would maintain current conditions and could allow for new economic activity. To the extent that any denied ROWs result in routing of utilities around the NCA, the additional costs of doing so would constitute an economic impact, with the degree of impact contingent on the types and lengths of the utilities involved. These effects would be based on the directive of the Sloan Canyon NCA Act, however, not decisions contained in this RMP.

To Socioeconomics from Transportation (No Action)

Because no existing roads and routes are designated, all roads and routes would be closed to motorized licensed vehicles. This action would reduce conflicts between motorized users and visitors wishing a more primitive experience. This action would have a moderate to major impact on elderly and handicapped users who desire or require motorized access to the NCA.

4.15.3 Impacts to Socioeconomics Under Alternative B: Emphasize Natural Character

To Socioeconomics from Recreation (Alternative B)

The actions under this alternative would increase satisfaction for recreators who desire to hike and enjoy natural conditions in the NCA. Major impacts to the satisfaction of people with other recreational desires (such as mountain biking) would occur. Even some hikers would experience diminished satisfaction because camping would be prohibited and trails would not be designated.

Restrictions would be placed on access to the Sloan Canyon Petroglyph Site, including requirements that visitors be accompanied by BLM-sponsored guides and limitations on group sizes. These restrictions could decrease total visitor satisfaction by decreasing the numbers of users and their access to portions of the site. At the same time, the quality of the experience for many site visitors would be increased.

To Socioeconomics from Facilities (Alternative B)

No visitor center would be constructed under this alternative, and development of contact stations, parking lots, and other amenities would be very limited. Net economic stimulus to the study area economy would be negligible.

Impacts from to Socioeconomics from Lands and Realty (Alternative B)

Amendments and ROWs would be considered on a case-by-case basis, which could allow for new economic activity and could result in conflicts with other user groups. To the extent that any denied ROWs result in routing of utilities around the NCA, the additional costs of doing so would constitute an economic impact, with the degree of impact contingent on the types and lengths of utilities involved. These effects would be based on the directive of the Sloan Canyon NCA Act, however, not decisions contained in this RMP. No new communication sites or film permits would be authorized, which could result in forgone economic activity.

Impacts from to Socioeconomics from Transportation (Alternative B)

All existing roads and routes would be closed to motorized licensed vehicles. This action would reduce conflicts between motorized users and those who want a more primitive experience. This action would have a moderate to major impact on elderly and handicapped users who desire or require motorized access to the NCA.

4.15.4 Impacts to Socioeconomics Under Alternative C: Moderate Developed Use

To Socioeconomics from Recreation (Alternative C)

Under this alternative, mountain biking, equestrian activity, rock climbing, and rock hounding would be allowed, with certain controls—such as limitation to or exclusion from certain trails or areas. Dogs would be allowed on leashes except within the Sloan Canyon Petroglyph Site. Shooting and geocaching would be restricted and prohibited, respectively, as in Alternative B. Access to the Sloan Canyon Petroglyph Site would be somewhat less restricted than under Alternative B. This alternative would allow most uses to occur, resulting in somewhat fewer conflicts between uses relative to the No Action alternative (Alternative A).

To Socioeconomics from Facilities (Alternative C)

This alternative's moderate level of development of recreational facilities and amenities, including a visitor center, would increase the quality of experience for visitors relative to the No Action alternative (Alternative A) and would provide a minor economic stimulus to the socioeconomic study area. Minor short-term increases in net economic activity would occur because of the infusion of construction spending. Over the long term, recreational spending (gas, hotels, food and beverages, charges for goods and services offered by commercial outfitters or venders operating under special recreation permits, etc.) by visitors from outside Clark County would result in a minor net economic stimulus.

To Socioeconomics from Lands and Realty (Alternative C)

Amendments and ROWs would be considered on a case-by-case basis, which could allow for new economic activity and could result in conflicts with other user groups. To the extent that any denied ROWs result in routing of utilities around the NCA, the additional costs of doing so would constitute an economic impact, with the degree of impact contingent on the types and lengths of utilities involved. These effects would be based on the directive of the Sloan Canyon NCA Act, however, not decisions contained in this RMP. No new communicationsites would be authorized, which could result in forgone economic activity. Film permits would be issued on a limited basis, which could allow for minor increases in economic activity.

To Socioeconomics from Transportation (Alternative C)

Four roads would be open to motorized licensed vehicles; all other roads and routes would be closed. This action would have a minor to moderate impact on elderly and handicapped users who desire or require motorized access to the NCA.

4.15.5 Impacts to Socioeconomics Under Alternative D: Emphasize Developed Uses

To Socioeconomics from Recreation and Facilities (Alternative D)

Rock climbing and rock hounding would be somewhat less restricted than under Alternative C. Dogs would be allowed off leash throughout the NCA but prohibited from the Sloan Canyon Petroglyph Site. Mountain bikers would receive dedicated-use trails in addition to the multi-use trails provided under Alternative C. This alternative would incorporate the widest possible range in the design of facilities and trails, from primitive to highly developed. These management actions would result in substantial access and satisfaction for most users. However, conflicts between users could occur because the level of development will be likely to attract increased use compared to the other alternatives. In addition, persons seeking primitive recreation experiences may experience minor to moderate reductions in the quality of their experience because of increased development.

To Socioeconomics from Facilities (Alternative D)

Development of recreational facilities and associated amenities would provide the greatest economic stimulus under this alternative. Short-term impacts would include the infusion of construction spending. Over the long term, recreational spending by visitors from outside Clark County would result in a net economic stimulus. Given the level of facility development in this alternative, the impact of this stimulus probably would be minor when compared to the surrounding urban economy.

To Socioeconomics from Lands and Realty (Alternative D)

Amendments and ROWs and new communicationsites would be considered on a case-by-case basis, which could allow for new economic activity and could result in conflicts with other user groups. To the extent that any denied ROWs result in routing of utilities around the NCA, the additional costs of doing so would constitute an economic impact, with the degree of impact contingent on the types and lengths of utilities involved. These effects would be based on the directive of the Sloan Canyon NCA Act, however, not decisions contained in this RMP. More people per film permit would be allowed than under Alternative C, which could result in greater but still minor increases in economic activity and minor increases in conflicts with other user groups.

To Socioeconomics from Transportation (Alternative D)

Six roads would be open to motorized licensed vehicles; all other roads and routes would be closed. This action could result in minor to moderate conflicts between motorized users and those who want a more primitive experience. This action would allow more access for elderly and handicapped users who desire or require motorized access to the NCA.

4.15.6 Environmental Justice

Executive Order 12898, regarding Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations, requires that disproportionately high and adverse human health and environmental impacts of Federal programs, policies, and activities on minority or low-income populations be identified and addressed. Neither Clark County nor any of the five U.S. Census Bureau census tracts containing or surrounding the NCA:

- Have minority or low-income populations exceeding 50 percent; or
- Have a percentage of minority or low-income population that is 10 percent or more greater than the figures for the state of Nevada.

Executive Order 12898, also requires BLM to consider impacts to the traditional lifestyle of a minority communities and archeological sites representing the ancestors of a minority community. For these reasons the BLM conducted an extensive planning process to identify interested Native American Tribes, included them in the identification and evaluation of the NCA's cultural resources, and conducted an ethnographic survey. The Sloan Canyon NCA is known to contain one site of major interest to the region's Native Americans – the Sloan Canyon Petroglyph Site. In accordance with the American Indian Religious Freedom Act, BLM would ensure that all policies enacted under the RMP would not inadvertently impair the ability of Native Americans to access the Sloan Canyon Petroglyph Site for traditional cultural purposes.

Therefore, there would be no environmental justice impacts from the proposed management actions.

4.16 Cumulative Impacts

Cumulative impacts are effects on the environment that result from the impact of implementing any one of the RMP alternatives in combination with other actions outside the scope of this plan, either within the Sloan Canyon NCA or outside it. Cumulative impact analysis is required by CEQ regulations because environmental conditions result from many different factors that act together. The total effect of any single action cannot be determined by considering it in isolation but must be determined by considering the likely result of that action in conjunction with many others. Evaluation of potential impacts considers incremental impacts that may occur from the proposed project, as well as impacts from past, present, and reasonably foreseeable future actions (RFFAs). Management decisions may be influenced by activities and conditions on adjacent public and nonpublic lands beyond the NCA boundary. Therefore, assessment data and information may span multiple scales, land ownerships, and jurisdictions. These assessments involve determinations that often are complex and, to some degree, are subjective.

4.16.1 Cumulative Analysis Methodology

The cumulative impacts discussion that follows considers the alternatives in the context of the broader human environment—specifically, actions that occur outside the scope and geographic area covered by the RMP. Cumulative impact analysis is limited to important issues of national, regional, or local significance. Therefore, not all resources identified for the direct and indirect impact analysis in this EIS are analyzed for cumulative impacts.

Because of the programmatic nature of an RMP and cumulative assessment, the analysis tends to be broad and generalized to address potential effects that could occur from a reasonably foreseeable management scenario combined with other reasonably foreseeable activities or projects. As a result, this assessment is primarily qualitative for most resources because of lack of detailed information that would result from project-level decisions and other activities or projects. Quantitative information is used whenever available, however, and as appropriate to portray the magnitude of an impact. The analysis assesses the magnitude of cumulative impacts by comparing the environment in its baseline condition to that with the expected impacts of the alternatives and other actions in the same geographic area. The magnitude of an impact is determined through a comparison of anticipated conditions against the naturally occurring baseline as depicted in the Affected Environment chapter or the long-term sustainability of a resource or social system.

The following factors were considered in this cumulative impact assessment:

- Federal, nonfederal, and private actions
- The potential for synergistic effects or synergistic interaction among or between effects
- The potential for effects to cross political and administrative boundaries
- Other spatial and temporal characteristics of each affected resource
- The comparative scale of cumulative impacts across alternatives.

4.16.2 Temporal and Spatial Boundaries

Temporal and spatial boundaries used in the cumulative analysis are developed on the basis of resources of concern and actions that may contribute to an impact. The baseline date for the cumulative impacts analysis is November 2002, which is when the NCA was established under the Sloan Canyon NCA Act. The temporal scope of this analysis is the life of the RMP, which encompasses a 20-year planning period.

Spatial boundaries vary and are larger for resources that are mobile or migrate (for example, desert bighorn sheep populations) compared to resources that are stationary. In some cases, spatial boundaries may be contained within the NCA or an area of the NCA. Spatial boundaries were developed to facilitate the analysis and are included under the appropriate resource section heading in *Section Cumulative Impacts By Resource Category*.

4.16.3 Past, Present, and Reasonably Foreseeable Future Actions

Past, present, and potential future actions are considered in the analysis to identify whether the environment has been degraded or enhanced and to what extent; whether ongoing activities are causing impacts; and trends for activities and impacts in the area. Projects and activities are evaluated on the basis of proximity, connection to the same environmental systems, potential for subsequent impacts or activity, similar impacts, the likelihood a project will occur, and whether the project is reasonably foreseeable.

Projects and activities considered in the cumulative analysis were identified through meetings held with cooperators as well as BLM employees with local knowledge of the area. Cooperators and BLM employees were asked to provide information on the most influential past, present, or reasonably foreseeable future actions. Additional information was obtained through discussions with agency officials and review of publicly available materials and websites.

Effects of past actions and activities are manifested in the current condition of the resources, as described in the Affected Environment chapter. RFFAs are future actions that have been committed to or known proposals that could take place within the 20-year planning period. RFFA scenarios are projections made only for the prediction of future impacts; they are not actual planning decisions or resource commitments. Projections, which have been developed for analytical purposes only, are based on current conditions and trends and represent a best professional estimate. Unforeseen changes in factors such as economics, demand, and Federal, State, and local laws and policies could result in different outcomes than those projected for this analysis.

Other potential future actions have been considered and eliminated from further analysis because there is only a small likelihood that these actions would be pursued and implemented within the life of the plan or because there is so little known about the potential action that formulating an analysis of impacts is premature. In addition, potential future actions that are protective of the environment (such as new potential threatened or endangered species listings or regulations related to fugitive dust emissions) have little likelihood of creating major environmental consequences alone or in combination with this planning effort. Federal actions such as species listing would require the BLM to reconsider decisions created from this plan because the consultations and relative impacts may no longer be appropriate. These potential future actions may have greater capacity to affect resource uses within the Sloan Canyon NCA; until more information is developed, however, no reasonable estimation of impacts could be developed.

Data on the precise locations and overall extent of resources within the Sloan Canyon NCA are considerable, although the information varies according to resource type and locale. Furthermore, understanding of the impacts on and the interplay among these resources is evolving. As knowledge improves, management measures (adaptive or otherwise) would be considered to reduce potential cumulative impacts in accordance with law, regulations, and the final RMP for the NCA.

4.16.4 Cumulative Impacts By Resource Category

Resource areas that have potential for cumulative impacts include the following: recreation, cultural, visual, lands and realty, transportation, vegetation, wildlife, air quality, grazing, socioeconomics, hydrology, and hazardous materials and litter. Cumulative impacts are discussed only for resources or uses that may experience impacts. The following resources and uses are expected to have negligible cumulative impacts and are not discussed: Wilderness Area, special designations—ACEC, interpretation, facilities, North McCullough Road ROW, wildland fire, geology and soils, minerals, hydrology, abandoned mines, and environmental justice. Some of these resource uses, which are discussed earlier in Chapter 4, are treated as actions that can result in cumulative impacts rather than resources that may be impacted, such as the North McCullough Road ROW and facilities. Cumulative impacts are discussed below by resource category.

Recreation

The cumulative impact boundaries for recreation include the NCA and Clark County. Development and population growth in the Las Vegas Valley and the City of Henderson is expected to increase casual recreation use in the urban interface. Increasing population growth would create a greater need for public land recreation. These trends are fostered by approximately 70,000 additional acres of BLM public lands potentially available for sale and development through 2018 and the Sloan Canyon NCA Act and improved transportation systems, including the Ivanpah Corridor near the NCA and McCullough Pass Road and Trail through the northern portion of the NCA. Development of the Ivanpah Airport, Ivanpah Corridor, and high-speed rail line would be likely to lead to additional tourism, development pressure, and associated recreation demand adjacent to the Sloan Canyon NCA. Although monitoring suggests that the current visitation to the Sloan Canyon NCA averages approximately 25,000 visitors annually, additional development and population growth adjacent to the boundaries probably would induce increased visitation and associated resource damage. Increased recreational demand adjacent to residential and urban areas would have major cumulative impacts on NCA facilities and resources and on visitor recreation experiences. Cumulative impacts from these external factors in the Sloan Canyon NCA would be more evident under Alternatives A and B—which provide minimal to no roads, routes, trails, or facilities to support recreation use—than under Alternatives C and D, which provide facilities and direct concentrated recreation use while providing a range of opportunities. As population grows, illegal recreation activities such as casual target shooting, trash dumping, auto stripping, and driving on undesignated roads would continue to occur in remote public lands and would increase in relation to growth and development. Increased recreation could lead to decreased quality in the recreation experience from increased vandalism and surface disturbance, overcrowding, displacement to areas that have received limited use in the past, and increased user conflicts in the long term.

The range of recreation opportunities near urban areas also would be cumulatively reduced under the public land disposal, NCA, and Wilderness designations, as well as by sprawling development. Limits on and loss of opportunities would cause a shift of recreation use to other areas and reduce options available for current and future users, which may place greater demand on accessible BLM public lands. Disposal areas, past designations, and residential development would induce a shift from public land casual use to directed-use

recreation, including developed facilities, trails, and community recreation areas, resulting in a cumulative loss of recreational freedom near urban areas.

Cumulative increases in development surrounding the Sloan Canyon NCA may detract from the visitor experience over time. Increased use of flight paths over remote public lands associated with the new Las Vegas heliport, the Henderson Executive Airport expansion, and the proposed Ivanpah Airport would create cumulative impacts that could include diminished visitor solitude and decreased quality of recreation experiences. Mining activity, power plants, and power lines and infrastructure create visual intrusions that could detract from the visitor experience in the NCA and the Wilderness Area. Given the protective direction of the Sloan Canyon NCA under the Sloan Canyon NCA Act, RMP management actions attempt to preserve the visitor experience from these external activities.

Cultural Resources

The cumulative impact boundary for cultural resources includes the NCA and Clark County. Cultural resources within the NCA include 144 sites surveyed to date containing various types of cultural resources. Cumulative indirect impacts to cultural resources are likely as a result of population growth, and the cumulative ground disturbance of projects and activities listed in *Section 4.17.2 Past, Present and Reasonably Foreseeable Future Actions*; and cumulative impacts to recreation patterns described in *Section 4.17.3.1 Recreation.* Long-term cumulative increases in visitor use and outdoor recreation within the NCA would increase the probability and frequency of the types of impacts described in *Section 4.4 Impacts to Cultural Resources.* Cumulative impacts to cultural resources under all alternatives could include theft, vandalism, accidental damage, or unknowing damage.

Approximately 5,000 acres have been developed annually in Clark County from 1970 to 2003, and the BLM Disposal Final Environmental Impact Statement assumes that this rate will continue in the Las Vegas Valley through 2018. Because this development may impact cultural resources, protections and management proposed under the NCA alternatives described herein would provide an overall cumulative impact to remaining cultural resources valued by Native Americans and others within the Las Vegas Valley, and increase the importance of traditional Tribal use of the Sloan Canyon Petroglyph Site.

Visual Resources

The cumulative impact boundary for visual resources includes key observation points from the NCA and areas within Clark County from which the NCA is potentially visible. As development continues in the Las Vegas Valley and in close proximity to the NCA, particularly on the northern boundary, views from within the NCA are becoming more urban. Although some areas within the NCA have natural obstructions, such as canyon walls, many of the recreational and visitor use areas do have views of urban development. Because most visitors focus on views into the mountains within the NCA, however, viewer impacts would be minor.

Lands and Realty

The cumulative impact boundary for lands and realty includes the NCA, Clark County, and major ROW corridors that intersect the NCA. Development and additional power plants would place a greater demand on lands and realty actions in and outside the NCA, creating the need for additional ROWs for power lines and supporting development. The Sloan Canyon NCA Act is more restrictive on placement of future ROWs, however. Restrictions on ROWs in the NCA and the Wilderness, combined with restrictions from other management plans in the area, would have a major effect by reducing routing options and increasing construction costs for utilities.

Vegetation

The cumulative impact boundaries for vegetation include the NCA, watershed boundaries extending outside the NCA, and contiguous geologic formations. An increase in development and population growth in close proximity to the NCA would increase visitor use within the NCA. This increase in visitor use, along with new facility, road, and trail development within the NCA under Alternatives C and D, could cause a cumulative loss of native vegetation as well as an increase in the number of species and acres with non-native plant species. Under Alternatives A and B, with less developed uses in the NCA and less management presence, visitor use probably would still increase and have an impact with respect to nonauthorized uses, such as creation of social trials. Special Status and sensitive plant species also could be affected through loss of habitat in and around the NCA for such species. The McCullough Road ROW also would reduce vegetation within the NCA along the chosen route.

Wildlife

The cumulative impact boundaries for wildlife extend beyond the NCA to include landforms, soil types, and vegetation communities in Clark County that provide forage sources, habitat, and locations of water for reptile, bird, and mammal species listed in the Affected Environment chapter. Major cumulative impacts to wildlife are expected to continue in the Las Vegas Valley from the increasing trend of residential development and resulting recreation use. Increased human habitation and visitation is encroaching into areas used by wildlife, leading to permanent loss of habitat; increased habitat degradation and fragmentation; displacement; increased disturbance; and direct mortality from road kills, predation, disease, and drought. The combination of increased human habitation and recreation use also may lead to major cumulative impacts to reptile populations if harvest and collection trends increase. Effects from reduced population sizes are particularly critical to Special Status and sensitive species, particularly species with limited home ranges or migration (such as reptiles). Mining activity south of the NCA poses concerns with regard to the threatened desert tortoise, as well as loss of habitat for bighorn sheep, Gila Monsters, and chuckwallas. RMP management alternatives increase protections for wildlife species in the NCA. In addition, direction provided by the Clark County Multiple Species Habitat Conservation Plan (MSHCP) and increased attention to wildlife management areas and recovery units being set aside in southern Nevada to protect Special Status and sensitive species would be likely to reduce the intensity of the these impacts. RMP management actions are not expected to contribute to cumulative negative effects on wildlife; they are expected to provide additional protections for desert species.

Cumulative increases in power plants, power lines, and supporting infrastructure throughout the area may lead to additional ground disturbance and supporting roads, resulting in habitat fragmentation and loss of wildlife habitat. Construction activity and use of the North McCullough Road and Trail in the northern portion of the NCA could fragment the northern extent of a bighorn sheep lambing area. Concentrated use in the area may displace bighorn sheep and disrupt reproductive cycles. Cumulative impacts in the NCA would be more evident under Alternatives A and B—which provide minimal to no roads, routes, trails, or facilities to support recreation use—than under Alternatives C and D, which provide facilities and direct concentrated recreation use. These factors, in combination contribute to reduced populations and decrease biodiversity in the long term. Under all alternatives, the Wilderness Area and the southern portion of the NCA would receive limited use and experience fewer disturbances to wildlife species. As a result, management actions in the NCA are not expected to contribute to cumulative negative effects from development.

Remote areas on public lands and conservation areas, including the NCA, may become enclaves for displaced wildlife populations. However, increasing flight paths and aircraft use over remote public lands associated with the new Las Vegas heliport, the Henderson Executive Airport expansion, and the proposed Ivanpah Airport would increase noise in remote areas. Increased noise may disrupt natural migration or breeding patterns for some species, which could lead to reduced population sizes. Species activities that are particularly susceptible to noise and disturbance include bighorn sheep lambing and raptor nesting. Proposed NCA management actions and the protective NCA designation would be likely to reduce noise from ground activity by eliminating or reducing designated OHV routes, concentrating activity, and focusing on nonmotorized recreation uses.

Socioeconomics

The cumulative impact boundaries for socioeconomics include the NCA, areas immediately adjacent to the NCA, and Clark County. Clark County is one of the fastest-growing counties in the United States; its population increased 120 percent from 1990 to 2003. The Disposal Area Expansion and transportation projects described above make it reasonably foreseeable that a long-term increase in population growth would continue.

Because of the small magnitude of the socioeconomic impact of the BLM's proposed actions relative to the long-term development trend in Clark County, all of the alternatives are likely to create less than moderate impacts on taxes, employment, population growth, and development of Clark County overall.

Long-term demand for recreational use of the NCA would increase under all of the alternatives as a result of county population growth, redirection of many recreational demands to the NCA from county areas being developed, the "designation effect" of the NCA, and development close to the boundaries of the NCA. As cumulative recreational demands on the NCA increase over time, conflicts between recreational uses are likely to increase. Under all alternatives, the fees that could be charged by the BLM in some areas of the NCA would result in increased fee revenue as visitor use increases.

Reasonably foreseeable population growth and development within Clark County and the entire Las Vegas Valley create long-term moderate to major indirect impacts to other resources within the NCA. The long-term trend of increasing development and population growth is the indirect cause of most of the cumulative impacts considered under other resource topics of this section.

4.17 Irreversible and Irretrievable Commitment of Resources

Section 102(2)(C) of the National Environmental Policy Act requires discussion of any irreversible or irretrievable commitments of resources that would be involved in the plan if it were implemented. An irretrievable commitment of a resource is one in which the resource or its use is lost for a period of time. An irreversible commitment of a resource is one that cannot be reversed.

Implementation of decisions in accordance with the four management alternatives is not likely to result in impacts that can be characterized as irreversible and irretrievable commitments. Some small-scale disruption to resources may occur, but it would be mitigated, as appropriate.

4.18 Unavoidable Adverse Impacts

Section 102(C) of the National Environmental Policy Act requires disclosure of any adverse environmental effects that cannot be avoided if the proposal is implemented. Unavoidable adverse impacts are those that remain following implementation of mitigation measures or impacts for which there are no mitigation measures. Some unavoidable adverse impacts would occur as a result of implementation of this Draft RMP/EIS. These impacts would be a result of increased visitation and recreational use of the NCA, in addition to surface disturbance. The decisions associated with the alternatives have been developed to respond to these impacts, however, and to be protective of the resources while allowing land use to be as diverse as possible.

4.19 Relationship between Local Short-term Uses and Long-term Productivity

Section 102(C) of the National Environmental Policy Act requires discussion of the relationship between local, short-term uses of the human environment and maintenance and enhancement of long-term productivity of resources. "Short-term" is defined as expected to occur within 1 to 5 years of implementation of the plan. "Long-term" is defined as after the first 5 years of implementation but within the life of the RMP.

The management decisions would result in various short-term effects, such as decreases in visual resource quality and recreational opportunities. The long-term productivity of resources within the NCA would not be diminished, however, because these short-term uses would be minimized by management actions to effect the opposite change over the long term. Overall, although there would be some disturbance to resources, the

flexible and responsive management approaches within the alternatives would protect the long-term productivity of the land, resources, and resource uses.

CHAPTER 5

Consultation and Coordination

5. CONSULTATION AND COORDINATION

5.1 INTRODUCTION

> *Not later than 3 years after the date of enactment of this Act, the Secretary, in consultation with the State, the city of Henderson, the County, and any other interested persons, shall develop a management plan for the [Sloan Canyon] Conservation Area.*
>
> —The Sloan Canyon NCA Act

The BLM land use planning process is guided by laws, regulations, and policies that require the agency to seek public involvement at key points in the development and analyses of management options (Appendix A). In addition, the Sloan Canyon National Conservation Area (NCA) Act, Title VI of the Clark County Act, requires BLM to coordinate with local governments and involve interested members of the public in developing a management plan for the NCA. Facilitating public involvement early in the process enabled BLM to develop reasonable alternatives to proposed actions and to prepare environmental documents that disclose the potential impacts of proposed actions and alternatives. At the core of the planning process are the many public interactions; information exchanges such as planning bulletins and the project Web site; Federal agency, State, and local coordination; and Tribal and agency consultation.

5.2 NOTICE OF INTENT

The Notice of Intent (Appendix L) published in the *Federal Register* on September 15, 2003, formally announced that the BLM Las Vegas Field Office was preparing a Resource Management Plan (RMP) and associated Environmental Impact Statement (EIS) for the Sloan Canyon NCA. The notice encouraged the public and interested State, local, and Tribal governments to participate in assisting the BLM with determining issues to be addressed in the planning alternatives and to be analyzed in the EIS.

5.3 PUBLIC SCOPING

Scoping is intended to identify public, tribal, and agency concerns with a proposed action; to determine which issues and alternatives require analysis; and to ensure that relevant issues drive the planning criteria. Preparing an RMP differs from other types of projects because there is no preconceived "proposed action" for which the BLM is asking the public to respond. Instead, scoping for the Sloan Canyon NCA management plan involved asking the public, interested tribes, and other agencies for both general approaches and specific ideas about how the NCA and its resources might be managed, which could then be developed into management alternatives. Thus, contributions from members of the public, tribes, and agencies were incorporated from the start in developing the range of management approaches analyzed in this RMP.

The scoping period for the Sloan Canyon NCA officially began with the publication of the Notice of Intent (NOI) on September 15, 2003, and ended on December 31, 2003. During this period, BLM announced the

commencement of the planning process, conducted public scoping and tribal information meetings, and collected and evaluated comments from the public scoping meetings. At the scoping meetings, participants were given an opportunity to be added to the mailing list to obtain future project information. On a continual basis, interested individuals may be added to the mailing list via the project Web site or by directly contacting BLM to place the request.

5.3.1 Advertisements and Announcements

To announce commencement of the project and to provide the public with information regarding the four scoping meetings, legal notices were published in newspapers, media releases were issued to local television and radio stations, and informal flyers were posted in community areas. Articles about Sloan Canyon were published in the *Las Vegas Review Journal*, *Las Vegas Sun*, *Henderson View*, *Las Vegas Mercury*, *Las Vegas Weekly*, *Boulder City News*, *Henderson Home News*, *City Life*, *In Business*, and *Laughlin Times.* In the September 3, 2003, issue of the *Henderson View,* an article on the petroglyphs titled, "A Pictorial History," made headlines. On November 11, 2003, the *Las Vegas Review Journal* published an article discussing the federal land auction that earned $63 million to help develop the Sloan Canyon NCA. Public scoping meeting schedules were published weekly in *Boulder City News* October through November 2003. The NOI, a map of the NCA, the Scoping Report, the Management Situation Analysis, and other documents pertaining to the project are available to the public on the project Web site and at local libraries (e.g., Paseo Verde Library, Boulder City Library, North Las Vegas Library (Main Branch), and the Summerlin Library). Other information repositories include the BLM Las Vegas Field and Nevada State Offices. Draft documents were replaced with final versions as they became available.

5.3.2 Web Site

The project Web site, www.sloancanyon.org, is an interactive tool that the BLM can use to post, and the public can use to access, information about the NCA, photographs, bulletins, upcoming events, reports, draft or final documents, BLM contact information, and information about the planning process. The Web site also allows the public to add itself to the mailing list and to submit comments and concerns during and after the scoping period.

5.3.3 Planning Mailers

In November 2003, the BLM sent a bulletin with scoping information to individuals and organizations on the Sloan Canyon project mailing list, including Federal, State, and local government agencies; Tribal government representatives; organizations; special-interest groups; and others who expressed an interest in the NCA planning process. The bulletin included a letter from the BLM Las Vegas Field Office Manager, a brief introduction to the NCA, preliminary themes to be addressed during planning, information about how to provide input, and a schedule of upcoming public scoping meetings. Another bulletin, released in March 2004, provided an overview of comments received during public scoping, and outlined the next steps in the planning process.

5.3.4 Scoping Meetings

Four public scoping meetings and three tribal information meetings were held in November and early December 2003 (Table 5.1). A total of 125 individuals attended the public scoping meetings that took place in an "open house" format, which presented an opportunity to interact with and direct comments and concerns to BLM resource specialists. The meeting agenda included a brief welcome by Tim O'Brien, Assistant Field Manager for Red Rock Canyon and Sloan Canyon NCAs; a welcome statement by Stephanie Garcia-Vause on behalf of the City of Henderson and cooperating agencies; and in Boulder City, Mayor Robert Ferraro opened the meeting by thanking the attendees for their support. All the meetings included a slide presentation by the Sloan Canyon NCA Manager, Charles Carroll, which described the NCA and its resources and discussed how it had been established in 2002 by the Sloan Canyon NCA Act. The special provisions of the Sloan Canyon NCA Act for management of the NCA were described, and the need for an RMP/EIS. The dual process of developing management plan alternatives and analyzing them through an EIS was explained, with particular emphasis on encouraging ideas and recommendations for managing the NCA as well as identifying potential concerns and impacts. The planning process and schedule were discussed, as were methods for providing BLM with effective scoping comments and other opportunities for public participation.

Following the formal portion of the meeting, attendees reviewed display materials and fact sheets for additional information on the Sloan Canyon NCA and the RMP/EIS process. BLM resource specialists and representatives of cooperating agencies answered questions and received input. Individuals submitted comments on paper comment forms and directly into the project comment database via computers. Other ideas, recommendations, and concerns raised during informal discussions were recorded on flip charts and later entered into the comment database.

For the remainder of the scoping period, comments were submitted to BLM in writing via mail or through the project Web site.

Table 5.1. Public Scoping and Tribal Information Meetings

Date	Location	Meeting Type
November 13, 2003	Las Vegas, Nevada	Tribal Information
November 17, 2003	Henderson, Nevada	Public Scoping
November 18, 2003	North Las Vegas, Nevada	Public Scoping
November 19, 2003	Boulder City, Nevada	Public Scoping
November 20, 2003	Las Vegas (Summerlin), Nevada	Public Scoping
December 11, 2003	Parker, Arizona	Tribal Information
December 15, 2003	Sloan Canyon NCA	Tribal Information

5.3.5 Scoping Results

A total of 512 comments were received during the comment period. The comments confirmed that the public, tribes, and agencies understood and embraced the concept of making recommendations for management of the NCA. The comments also provided many well-considered ideas, along with identifying related issues, concerns, and potential impacts. The comments were sorted into the following 12 topical categories: cultural resources, recreation, off-highway vehicles, urban interface issues, wilderness, access and transportation, lands and realty, natural resources, interpretation, visitor services, management issues, and funding.

A majority of the comments addressed Recreation, Access and Transportation, and Cultural Resources, with widespread agreement that the Sloan Canyon Petrogylph Site should be protected. Cultural Resources comments and issues advocated protection from impact of visitation, vandalism, and theft of resources. Some Native Americans request the ability to conduct tribal ceremonies at the NCA. Recreation comments and issues ranged from hiking trails and mountain biking to camping and recreational target shooting. Access and Transportation comments and issues ranged from constructing no new roads to identifying specific road locations and access points in the NCA.

Most other issues supported a range of ideas and management possibilities. A few of the comments received dealt with administrative actions (which do not require a plan decision to implement) or were outside the scope of the RMP to make decisions (e.g., changes to the NCA boundary). All issues and concerns submitted during the scoping period have been considered in the development of the analysis for this RMP/EIS.

5.4 Community Information Meeting

The BLM hosted a Community Information Meeting at the Las Vegas Field Office on March 24, 2004, to provide cooperating agencies, local companies and organizations, and interested members of the public updates on the RMP planning process. The meeting agenda included an overview of the sequence of planning activities to follow the public scoping period; a brief discussion of comments received during scoping; a discussion on fundamental, infrastructure, and transportation/access alternatives; plans for interim management, particularly for reducing disturbance at the NCA; and volunteer opportunities.

5.5 Agency Consultation and Coordination

Title II, Section 202 of the Federal Land Policy and Management Act of 1976 (FLPMA) requires BLM to coordinate with certain Federal, State and local agencies, Native American Tribes, and other entities during the National Environmental Policy Act (NEPA) decisionmaking process. The BLM is also directed to integrate NEPA requirements with other environmental review and consultation requirements to reduce paperwork and delays (40 *Code of Federal Regulations* [CFR] 1500.4-5). The BLM Las Vegas Field Office extended an invitation to the State of Nevada, Clark County, other agencies, and federal and local governments that have jurisdiction by law or could offer special expertise to the project. Below is a list of

cooperating agencies, tribes, and organizations that have committed to participating in the RMP/EIS development as cooperating agencies. Cooperating agencies joined BLM early in the planning process and actively participated in the planning meetings.

State of Nevada

- Nevada Department of Wildlife
- Nevada State Historic Preservation Office (SHPO)

County

- Clark County

Local

- City of Henderson
- Boulder City

Native American Tribes

- Las Vegas Paiute Tribe
- Paiute Indian Tribe of Utah
- Fort Mojave Indian Tribe

Initially, cooperating agencies were given a field tour of the NCA; were asked by BLM to provide existing data and other relevant information within the scope of their responsibilities, goals, and mandates; and were encouraged to work with the BLM interdisciplinary team to develop and assess alternatives and impacts. The BLM Las Vegas Field Office conducted a series of meetings with cooperating agencies from January through August 2004 to engage them in the planning process that included development and review of alternatives and impacts. Many of the cooperating agencies became integral members of the interdisciplinary team for the RMP/EIS and attended extensive meetings to share their expertise with BLM and contractor staff, making this RMP/EIS truly a cooperative effort. The City of Henderson, which shares a border with roughly the north half of the NCA, not only made major contributions in expertise to this planning effort but also is taking the NCA and its resources into account in its own city planning of streets, libraries, and other infrastructure in the rapidly developing lands bordering the NCA. Table 5.2 summarizes the consultation activities.

To comply with Section 7(c) of the Endangered Species Act of 1973, BLM consulted with the United States Fish and Wildlife Service in November 2003 to ensure that proposed RMP actions neither compromise the existence of listed species nor destroy or adversely modify critical habitat within the NCA (50 CFR 400). The

Nevada Fish and Wildlife Office referred BLM to the State of Nevada's Natural Heritage Program for verification of threatened, endangered, proposed, and candidate plant and animal species and species of concern in the NCA and for further evaluation of conservation needs for the project area (Appendix M).

The Nevada SHPO cooperated with BLM to ensure that historic properties are appropriately considered in the Sloan Canyon resource management planning (RMP)/EIS process.

5.5.1 Native American Tribes

The Sloan Canyon NCA is known to contain one site of major interest to Native American Tribes—the Sloan Canyon Petroglyph Site; however, when this plan was initiated, it was unknown if others might exist. An intensive program to identify interested tribes and include them in the identification and evaluation of cultural resources was an integral part of the planning process. Along with the provisions of the NEPA and FLPMA, which are routinely implemented through tribal consultations in federal planning, the American Indian Religious Freedom Act (AIRFA) plays a special role when BLM is planning policies, which could directly or indirectly affect the management of a Traditional Cultural Property such as the Sloan Canyon Petroglyph Site. AIRFA's core mandate is to ensure that federal agencies do not inadvertently infringe upon the practice of traditional Native American religion.

Consultation with the tribes therefore occurred and continues on several different levels. Government-to-government consultations invited interested tribes to become cooperating agencies at the level of involvement of their choice, public information meetings were held at tribal locations, and an intensive ethnographic study was undertaken with the cooperation of tribal officials and individual members to identify and evaluate the cultural resources of the NCA. BLM is committed to long-term consultation and cooperation with the tribes regarding the management of cultural aspects of the NCA, and a Native American Coordinator who is assigned to the NCA permanent staff is carrying forward the relationships developed during this planning process.

The following Native American Tribes were invited to participate in the planning process as cooperating agencies and to regularly receive planning updates.

Native American Tribes

- Chemehuevi Indian Tribes
- Colorado River Indians
- Fort Mojave Indian Tribe
- Hopi Tribal Council
- Hualapai Tribal Council
- Kaibab Paiute Tribe
- Las Vegas Paiute Tribe
- Moapa Paiute Tribe

- Pahrump Paiute Tribe
- Paiute Indian Tribe of Utah:
  - Indian Peaks Band
  - Kanosh Band
  - Koosharem Band
  - Shivwits Band
- Twenty-Nine Palms Band of Mission Indians.

5.5.2 Meeting Summary

Table 5.2 summarizes the consultation activities facilitated by BLM throughout the RMP/EIS development.

Table 5.2. Summary of Consultation Activities

Date	Meeting Type	Topics/Issues Addressed
October 29, 2003	Cooperating Agency	Pre-scoping Coordination Meeting With Clark County and State Historic Preservation Office
December 5, 2003	Cooperating Agency	Agency Coordination Meeting With Clark County
January 15, 2004	Cooperating Agency	Preliminary Issues for Alternatives, Access and Transportation
January 20, 2004	Cooperating Agency	Field Tour (With Boulder City Representatives)
January 27, 2004	Cooperating Agency	Preliminary Issues for Alternatives, Access, and Transportation
February 5, 2004	Cooperating Agency	Access Issues
February 18, 2004	Cooperating Agency	Field Tour Logistics
February 19, 2004	Cooperating Agency	Sloan Canyon NCA Planning Process
February 23, 2004	Tribal Organization	Field Tour (With Representatives of Kanosh Band of Paiutes, Aka Mahakav Society, Chambers Group, Far Western)
March 22, 2004	Cooperating Agency	Alternatives Theme and Objective Development, Mission, and Vision for the NCA
March 24, 2004	Community Information	Project Update to the Community
April 1, 2004	Cooperating Agency	Field Tour
April 6, 2004	Cooperating Agency	Access and Transportation
April 9, 2004	Tribal Organization	Field Tour for Aha Makav Cultural Society, Fort Mojave Tribe Representatives
April 10, 2004	Tribal Organization	NCA Site Visit by Las Vegas Paiute Tribe, Pahrump Paiute Tribe, and Moapa Paiute Tribe Representatives

Date	Meeting Type	Topics/Issues Addressed
April 13, 2004	Cooperating Agency	Field Tour (with Clark County Representatives)
April 15, 2004	Cooperating Agency	Access and Transportation
April 15, 2004	Cooperating Agency	Meeting with State Historic Preservation Office
April 19, 2004	Cooperating Agency	Access and Transportation
May 4, 2004	Cooperating Agency	Access and Transportation
June 1, 2004	Cooperating Agency	North McCullough Road and Trail Right-of-Way (ROW) Alternatives
June 10, 2004	Cooperating Agency	Henderson/BLM Road ROW
June 21–24, 2004	Cooperating Agency	Preliminary Alternatives
June 29, 2004	Cooperating Agency	Class II and Ethnographic Report Briefing
July 6, 2004	Cooperating Agency	Wildlife Alternatives
July 7, 2004	Cooperating Agency	Review of Alternatives for Petroglyph Site
August 4, 2004	Cooperating Agency	Engineering and construction approach to North McCullough Road and Trail
August 19, 2004	Cooperating Agency	North McCullough Road and Trail Right-of-Way (ROW)
August 24-26, 2004	Cooperating Agency	Preliminary Impacts and Cumulative Impacts
September 4, 2004	Cooperating Agency	Preliminary Impacts and Cumulative Impacts briefing provided to Clark County Comprehensive Planning Manager
September 13, 2004	Cooperating Agency	Planning Update Provided to City of Boulder City

5.6 LIST OF PREPARERS AND REVIEWERS

The Sloan Canyon RMP/EIS was prepared by Booz Allen Hamilton, a third-party contractor, under the direction of and in a collaborative planning process with the BLM Las Vegas Field Office. This section lists those individuals by organization and their role in preparing this document.

Table 5.3. Bureau of Land Management Preparers and Reviewers

Contributor	Project Role	Qualifications
Charles Carroll	Sloan Canyon NCA Manager	B.A., Anthropology Years Experience: 30

Contributor	Project Role	Qualifications
Sarah Sutherland	Project Manager/Lead Outdoor Recreation Planner; Facilities, Recreation, ROW, Transportation	B.S., Outdoor Recreation/Resource Management Years Experience: 7
Kathy August	Interpretation	B.S., Outdoor Recreation and Interpretation Years Experience: 20
Bob Boyd	Water Quality, Geology, and Soils	B.S., Geophysics Years Experience: 16
Kirsten Cannon	Public Affairs	B.A., Journalism Years Experience: 8
Lisa Christianson	Air Quality	M.B.A. Years Experience: 15
David Fanning	Abandoned Mines, Hazardous Material, Minerals/Geology	M.S., Geology Year Experience: 23
Lola Henio	Interpretation	B.S., Wildlife Management Years Experience: 14
Gerald Hickman	Wildlife	B.S., Wildlife/Biology M.S., Natural Sciences Years Experience: 38
Roy Lee	Grazing	B.S., Range Management Years Experience: 33
Greg Marfil	Fire Management	B.S., Wildlife Management; A.A., General Science; A.A.S., Wildland Fire Management Years Experience: 13
Gayle Marrs-Smith	Vegetation	B.S., Biology M.S., Botany Years Experience: 12
Donn Siebert	Wilderness, Visual Resource Management	B.S., Watershed Management Years Experience: 26
Scott Stevens	Law Enforcement	B.S., Forestry/Recreation Resource Management Years Experience: 21
Bob Taylor	GIS	B.S., Landscape Architecture Years Experience: 30

Contributor	Project Role	Qualifications
Shawna Woods	Lands and Realty	B.S., Renewable Natural Resources/Range Science Years Experience: 25
Sue Woods	Lands and Realty	B.S., Parks and Recreation Years Experience: 15

Table 5.4. Booz Allen Hamilton Team Preparers and Reviewers

Contributor	Project Role	Qualifications
Pam Adams	Project Manager; NEPA Specialist; Earth Sciences	B.S., Geology Years Experience: 20
Quincy Bahr	Interpretation, Cultural Resource, Water Resources and Quality	M.S., Natural Resource Management Planning B.S., Natural Resources Management and Planning A.S., Humanities, Arts and Social Sciences Years Experience: 5
Kim Beheler	Project Web Sites	B.S., Business Information Technology Years Experience: 1.5
Ginny Bengston	Cultural	M.A., Anthropology Years Experience: 12
Dean Bibles	Public Lands	B.S., Range Management Years Experience: 45
Tara Burkey	GIS	M.A., Applied Geography B.A., Geography and Environmental Studies Years Experience: 5
Tim Canan	Air Quality	Master of Urban and Regional Planning B.S., Public Administration and Political Science Years Experience: 17
Karen DeSimone	Public Affairs	M.A., Urban and Environmental Planning B.S., Environmental Sciences Years Experience: 11
Amy Gilreath	Cultural	M.A., Anthropology Years Experience: 25

Contributor	Project Role	Qualifications
Jared Gunnerson	Fire Management, Grazing	Master of Public Administration, Natural Resource Management B.A., Environmental Policy Years Experience: 10
Thom Humber	GIS	B.A., Geography Years Experience: 13
Eric Hurley	Socioeconomics and Environmental Justice	M.S., and B.S., Economics Years Experience: 4
Greg Kloberdanz	Facilities, Lands and Realty	B.S., Environmental and Planning Landscape Architecture Years Experience: 10
Melanie Martin	Cumulative Impacts	B.S., Agriculture Years Experience: 5
Jim May	Lands and Realty, Alternatives Specialist	M.S., Water Resources Management B.A., Zoology Years Experience: 15
Lisa McDonald	Socioeconomics and Environmental Justice	Ph.D., M.S., Mineral Economics B.S., Earth Science Years Experience: 12
Anjana Mepani	RMP/EIS Document Manager, NEPA Specialist, Facilities	Master of Urban and Regional Planning B.A., Environmental Analysis and Design Years Experience: 7
Dan Morse	Recreation Specialist/Planner; Visual Resource Management, Recreation, Wilderness	M.S., Forest Economics B.S., Natural Resource Recreation Years Experience: 4
Kasey Pearson	Transportation, ROW	B.A., Environmental Biology Years Experience: 7
Al Pierson	Public Lands	B.S., Wildlife Science/Range Management Years Experience: 32
Amanda Pryor	Vegetation Management, Special Status Species	M.S., Environmental Biology B.A., Biology Years Experience: 9

Contributor	Project Role	Qualifications
Dana Purrone	Wildlife	B.A., International Policy/Environmental Policy B.A., Spanish Years Experience: 6
Warner Reeser	Air Quality	Ph.D., Earth Resources M.S., Atmospheric Science B.A., Mathematics Years Experience: 38
Florissa Reynoso	Technical Reviewer/Document Support	B.A., English Years Experience: 2
Mike Sumner	Recreation	B.S., Recreation Resource Management Years Experience: 4
Lloyd Tabing	Air Quality, Interpretation, Socioeconomics and Environmental Justice, Minerals	M.S., Land Use Management B.S., Natural Resource Management B.S., Urban Planning A.S., Health and Natural Science Years Experience: 5
Leslie Watson	Vegetation Management, Special Status Species	B.S., Zoology Years Experience: 15
Dave Wegner	Vegetation, Wildlife Management, Special Status Species	M.S., Aquatic Sciences B.S., Aquatic Ecology Years Experience: 24

Table 5.5. Cooperating Agencies' Representatives

Cooperating Agency	Representative	Role
Boulder City	Vicki Mayes	City Manager/City Clerk
	Brok Armantrout	Community Development Director
City of Henderson	Stephanie Garcia-Vause	Principal Planner
	Jared Gerber	Planner
	James Dale	Assistant Manager, Division Real Property and Environmental Management
	Lance Olson	Supervising Engineer
	Robert Wilson	Real Property Specialist
	Robert Herr	Traffic Engineer

Cooperating Agency	Representative	Role
	John Rinaldi	Property Management and Redevelopment Manager
Clark County	Rob Mrowka	Planning Manager, Comprehensive Planning Environmental Planning Division
Nevada Department of Wildlife	Craig Stevenson	Habitat Biologist
State Historic Preservation Office	Alice M. Baldrica	Deputy State Historic Preservation Officer, Planner, and Archaeologist
Fort Mohave Indian Tribe	Linda Otera	Aha Makav Cultural Society
Las Vegas Paiute Tribe	Kenny Anderson	Manager, Environmental Programs
Paiute Indian Tribe of Utah	Dorena Martineau	Director, Cultural Resources

ACRONYMS

ACRONYMS

ACEC	Area of Critical Environmental Concern
AIRFA	American Indian Religious Freedom Act
AMR	Appropriate Management Response
ANL	Argonne National Laboratory
ATV	All-Terrain Vehicle
BEA	Bureau of Economic Analysis
BLM	Bureau of Land Management
CCDCP	Clark County Department of Comprehensive Planning
CDFG	California Department of Fish and Game
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CL_2	Chlorine
CMAQ	Community Multi-Scale Air Quality
CO	Carbon Monoxide
DAQEM	Department of Air Quality and Environmental Management
DEIS	Draft Environmental Impacts Statement
DOI	Department of the Interior
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
F.I.R.E	Fire, Insurance, and Real Estate
FLPMA	Federal Land Policy and Management Act
GIS	Geographic Information System
H_2S	Hydrogen Sulfide
LAC	Limits of Acceptable Change
LVRMP	Las Vegas Resource Management Plan
MBTA	Migratory Bird Treaty Act
MEA	Management Emphasis Area
MOU	Memorandum of Understanding
MRDG	Minimum Requirement Decision Guide
MSA	Management Situation Analysis
MSHCP	Multiple Species Habitat Conservation Plan
NAAQS	National Ambient Air Quality Standard
NAICS	North American Industry Classification System
NBWG	Nevada Bat Working Group
NCA	National Conservation Area
NDCNR	Nevada Department of Conservation and Natural Resources
NDOW	Nevada Division of Wildlife
NEPA	National Environmental Policy Act
NLCS	National Landscape Conservation System
NNHP	Nevada Natural Heritage Program
NOAA	National Oceanic and Atmospheric Administration
NO	Nitrogen Oxide
NOI	Notice of Intent
NPS	National Park Service
NRCS	National Resource Conservation Service

NRHP	National Register of Historic Places
NWS	National Weather Service
O_3	Ozone
OHV	Off-Highway Vehicle
OLVF	Outside Las Vegas Foundation
Pb	Lead
PM	Particulate Matter
PNC	Preferred Natural Condition
PL	Public Law
PPB	Parts Per Billion
PPM	Parts Per Million
RAC	Resource Advisory Council
RMP	Resource Management Plan
ROD	Record of Decision
ROS	Recreation Opportunity Spectrum
ROW	Right-of-Way
SHPO	State Historic Preservation Office
SIC	Standard Industry Classification
SIP	State Implementation Plan
SMA	Special Management Areas
SNPLMA	Southern Nevada Public Lands Management Act
SO_2	Sulfur Dioxide
SRMA	Special Recreation Management Area
SRP	Special Recreation Permit
U.S.C.	United States Code
USDA	United States Department of Agriculture
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USDI	United States Department of the Interior
USGS	United States Geological Survey
VOC	Volatile Organic Compounds
VRI	Visual Resource Inventory
VRM	Visual Resource Management
WSA	Wilderness Study Area
WUI	Wildland Urban Interface

GLOSSARY

GLOSSARY

AIR QUALITY. The cleanliness of air as measured by the levels of pollutants relative to standards and guideline levels established to protect human health and welfare.

ALIQUOT PARTS. "Aliquot Parts" means 160-acre, 80-acre, 40-acre, and 10-acre units, or other regular subdivisions of a section, which are quarter divisions of a section of land, excluding government lots and tracts, as set forth in the current manual of instructions for the survey of the public lands of the United States.

ALLOTMENT. An area of land where operators graze their livestock. It consists of public lands but may include parcels of private or state-owned lands. The number of livestock and period of use are stipulated for each allotment.

AMBIENT AIR QUALITY STANDARDS. Standards established on a state or federal level that define the limits of airborne concentrations of designated criteria pollutants (e.g., nitrogen oxide, sulfur oxide, carbon monoxide, particulate matter with aerodynamic diameters less than 10 microns [PM_{10}], ozone, and lead) to protect public health with a margin of safety (primary standards) and to protect public welfare, including plant and animal life, visibility, and materials (secondary standards).

APPROPRIATE MANAGEMENT RESPONSE (AMR). Specific actions taken in response to a wildland fire to implement protection and fire use objectives. Category A—private lands, BLM facilities, and other areas with values where fire would not be desired. Category B—areas where a variety of appropriate fire suppression techniques would be applied to meet the resource objectives specified in the Resource Management Plan (RMP) and other site specific activity plans.

AREA OF CRITICAL ENVIRONMENTAL CONCERN (ACEC). An area established through the planning process as provided in the Federal Land Policy and Management Act (FLPMA) where special management attention is required (when such areas are developed or used or where no development is required) to protect and prevent irreparable damage to important historic, cultural, or scenic values; or to fish and wildlife resources or other natural systems or processes; or to protect life and afford safety from natural hazards.

AVOIDANCE AREAS. Areas with sensitive resource values where rights-of-way and Section 302 permits, leases, and easements would be strongly discouraged. Authorizations made in avoidance areas would have to be compatible with the purpose for which the area was designated and not otherwise be feasible on lands outside the avoidance area.

BASIN. A depressed area having no surface outlet (topographic basin); a physiographic feature or subsurface structure that is capable of collecting, storing, or discharging water by reason of its shape and the characteristics of its confining material (water); a depression in the earth's surface, the lowest part often filled by a lake or pond (lake basin); a river or canal widened (drainage, river, stream basin).

BASIN AND RANGE PHYSIOGRAPHIC PROVINCE. A province in the southwestern United States characterized by a series of tilted fault blocks forming longitudinal ridges or mountains and broad intervening basins.

BIOLOGICAL ASSESSMENT. The gathering and evaluation of information on proposed endangered and threatened species, critical habitat, and proposed critical habitat. Required when a management action potentially conflicts with endangered or threatened species, the biological assessment is the way federal agencies enter into formal consultation with the U.S. Fish and Wildlife Service (USFWS) and describe a proposed action and the consequences to the species that the action would affect.

BIOLOGICAL OPINION. A document prepared by USFWS stating its opinion as to whether a federal action would likely jeopardize the continued existence or adversely modify the habitat of a listed threatened or endangered species.

CAMPING (PRIMITIVE). Primitive and dispersed camping is camping that uses no facilities, no vehicles and occurs at least 200 yards from a designated road, route, or trail.

CANDIDATE SPECIES. Any species not yet officially listed but which are undergoing a status review or are proposed for listing according to *Federal Register* notices published by the Secretary of the Interior and the Secretary of Commerce.

CLOSED AREA OR TRAIL. Designated areas and trails where recreational uses such as off-highway vehicles or mountain bikes are permanently or temporarily prohibited.

COMMERCIAL PHOTOGRAPHY OR FILMING. Includes still or motion photography, photo shoots, and motion pictures for profit or financial gain. Visitors using cameras or recording devices for personal use and not for financial gain are generally exempt from film permit requirements.

COMMUNICATION SITES. Are the parcels of land containing the communication rights-of-way (ROW), not the individual ROW.

COMMUNITY. An assemblage of plant and animal populations in a common spatial arrangement.

CONSERVATION FOR FUTURE USE. This category is reserved for any unusual cultural property, which, because of scarcity, a research potential that surpasses the current state of the art, singular historic importance, cultural importance, architectural interest, or comparable reasons, is not available for consideration as the subject of scientific or historical study that would result in its physical alteration. A cultural property included in this category is deemed worthy of segregation from all other land or resource uses, including cultural resource uses, that would threaten the maintenance of its present condition or setting, as pertinent, and will remain in this use category until specified provisions are met in the future.

COOPERATING AGENCY. The cooperating agency assists the lead federal agency in developing an Environmental Assessment (EA) or Environmental Impact Statement (EIS). The Council on Environmental Quality (CEQ) regulations for implementing the National Environmental Policy Act define a cooperating agency as an agency that has jurisdiction by law or special expertise for proposals covered by the National Environmental Policy Act (40 *Code of Federal Regulations* [CFR] 1501.6). Any Federal, State, local government jurisdiction with such qualifications may become a cooperating agency by agreement with the lead agency.

CORRIDOR. A wide strip of land within which a proposed linear facility could be located.

CULTURAL RESOURCES. Cultural resources include archaeological, historic, or architectural sites, structures, or places with important public and scientific uses, and locations of traditional cultural or religious importance to specific social and/or cultural groups.

CUMULATIVE IMPACTS. The impact on the environment that results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions occurring over a time period. Cumulative impacts can result from similar projects or actions, as well as from projects or actions that have similar impacts (40 CFR 1508.7).

DESIGNATED ROADS AND TRAILS. Specific roads and trails where some type of motorized vehicle use is allowed either seasonally or yearlong.

ENDANGERED SPECIES. Any species that is in danger of extinction throughout all or a significant portion of its range.

ENVIRONMENTAL IMPACT STATEMENT (EIS). A formal public document prepared to analyze the impacts on the environment of a proposed project or action and released for comment and review. An EIS must meet the requirements of National Environmental Policy Act, CEQ guidelines, and directives of the agency responsible for the proposed project or action.

ENVIRONMENTAL JUSTICE. The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic groups, should bear a disproportionate share of the negative environmental consequences resulting from operations or the execution of federal programs and policies. Executive Order 12898 directs federal agencies to make achieving environmental justice part of their missions by identifying and addressing disproportionately high and adverse effects of agency programs, policies, and activities on minority and low-income populations.

EXISTING ROUTES. The roads, trails, or ways that are used by motorized vehicles, mechanized uses (mountain bikes), pedestrians (hikers), and/or equestrians (horseback riders) and are, to the best of BLM's knowledge, in existence at the time of RMP/EIS publication.

EXCLUSION AREA. Areas with sensitive resource values where ROWs and 302 permits, leases, and easements would not be authorized.

EXPERIMENTAL USE. This category may be applied to a cultural property judged well suited for controlled experimental study, to be conducted by BLM or others concerned with the techniques of managing cultural properties, which would result in the property's alteration, possibly including loss of integrity and destruction of physical elements. Committing cultural properties, or the data they contain, to loss must be justified in terms of specific information that would be gained and how it would aid in the management of other cultural properties. Experimental study should aim toward understanding the kinds and rates of natural or human-caused deterioration, testing the effectiveness of protection measures, or developing new research or interpretation methods and similar kinds of practical management information. It should not be applied to cultural properties with strong research potential, traditional cultural importance, or good public use potential, if it would significantly diminish those uses.

FACILITIES. Something (such as a Visitor Center) that is constructed, installed, or established to serve a particular purpose.

GEOCACHING. An outdoor sport or a high-tech version of treasure hunting. Geocachers seek out hidden treasures using Global Positioning System (GPS) coordinates posted on the Internet by those hiding the cache. Using a GPS unit, players trek out into recreation areas to find the hiding spot of the cache. Once found, a cache may provide the visitor with a wide variety of rewards. If the visitor takes something out of the cache, he or she is asked to leave something in return. Caches typically consist of a waterproof container discreetly placed within the local terrain. The container will include a logbook and any number of more or less valuable items (e.g., toys, books, money, jewelry, trinkets).

GEOGRAPHIC INFORMATION SYSTEM (GIS). A computer system capable of capturing, storing, editing, analyzing, and graphically displaying data and describing places on the Earth's surface.

HABITAT. A specific set of physical conditions that surround a single species, a group of species, or a large community. In wildlife management, the major components of habitat are considered to be food, water, cover, and living space.

HAZARDOUS MATERIAL. A substance, pollutant, or contaminant that, because of its quantity, concentration, or physical or chemical characteristics, poses a potential hazard to human health and safety or to the environment if released into the workplace or the environment.

IMPACT. The resulting effect of an action whether direct, indirect, or cumulative on a specific resource that may be beneficial or detrimental (adverse).

- **Direct:** Impacts caused by an action occurring at the same time and place
- **Indirect:** Impacts caused by an action and occurring later in time or farther removed in distance, but still reasonably foreseeable
- **Cumulative:** Impacts resulting from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions.

INVASIVE SPECIES. Organisms that were introduced into an environment where they did not evolve.

LAND USE PLAN. A plan that reflects an analysis of activity systems and a carefully studied estimate of future land requirements for expansion, growth control, and revitalization or renewal. The plan shows how development in the area should proceed in the future to ensure the best possible physical environment for living, the most economic and environmentally sensitive use of land, and the proper balance in use from a cost revenue point of view. The land use plan embodies a proposal as to how land should be used in the future, recognizing local objectives and generally accepted principles of health, safety, convenience, economy, and general living amentities.

LICENSED MOTORIZED VECHICLES. Licensed motor vehicles include any motor vehicle that maintains an active tag or registration. The term "motor vehicle" includes automobiles, trucks, buses, campers, trailers, and motorcycles.

LIMITS OF ACCEPTABLE CHANGE (LAC). A framework for establishing acceptable and appropriate resource and social conditions in recreation settings; a system of management planning.

LONG-TERM EFFECT. The effect could occur for an extended period after implementation of the alternative. The effect could last several years or more.

MANAGEMENT DECISION. A decision made by BLM to manage public lands. Management decisions include land use plan decisions and implementing decisions.

MANAGEMENT SITUATION ANALYSIS (MSA). A companion document to the RMP that provides the background documentation for the development of alternatives. An MSA usually consists of the physical profile, existing management situation, and capability analysis. Data from the MSA for this RMP is summarized in Chapter 3, Affected Environment, and the No Action Alternative.

MONITORING. The periodic and systematic collection of resource data to measure progress toward achieving objectives.

MOTOR VEHICLE. Any vehicle that is self-propelled or any vehicle that is propelled by electric power obtained from batteries.

MOTORIZED VEHICLES OR USES. Vehicles that are motorized, including but not limited to jeeps, all-terrain vehicles (ATV), and trail motorcycles or dirt bikes.

MULTIPLE USE. The management of the public lands and their various resource values so that they are used in the combination that will best meet the present and future needs of the American people; making the most judicious use of the land for some or all these resources related services over area large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; the use of some land for less than all the resources; a combination of balanced and diverse resource uses that takes into account the long-term needs of future generations for renewable and nonrenewable resources, including recreation, range, timber, minerals, watershed, wildlife and fish, and natural scenic, scientific and historical values; and harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment with consideration being given to the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return of the greatest unit output (Section 103, FLPMA).

NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS). National standards established under the Clean Air Act by the Environmental Protection Agency (EPA). Prescribed pollution levels in the outdoor air that may not be exceeded. There are two levels of NAAQS: primary, set at a level to protect the public health from air pollution damage; and secondary, set at a level to protect public welfare from air pollution damage.

NATIONAL REGISTER OF HISTORIC PLACES. A listing of architectural, historical, archaeological, and cultural sites of local, state, or national significance, established by the National Historic Preservation Act and maintained by the National Park Service.

NATURALNESS. Refers to an area that "generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable" (Set 2[c] of the Wilderness Act of 1964).

NEGLIGIBLE IMPACTS. Impacts that are small in magnitude and importance and difficult or impossible to quantify relative to those occurring naturally or attributed to other actions.

NONATTAINMENT AREA. Any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant.

NOXIOUS WEEDS. A plant species designated by federal or state law as generally possessing one or more of the following characteristics: aggressive and difficult to manage; parasitic; a carrier or host of serious insects or disease; or non-native, new or uncommon to the United States.

OBJECTIVE. A description of a desired condition for a resource. Objectives can be quantified and measured and, where possible, have established time frames for achievement.

OFF-HIGHWAY VEHICLE (OHV). Refers to any motorized vehicle capable of operating on roads, trails, or designed areas that are not maintained. These include motorcycles, ATVs, dune buggies, and four-wheel-drive vehicles. An OHV is a vehicle not required to be state licensed for street use.

ORGANIZED GROUP. An organized group has a formal way of coordinating and carrying out its activities, appointed or elected leadership, and may hold periodic meetings. These groups may be affiliated with schools, associations, and community organizations.

PLANNING AREA. The geographical area for which land use and resource management plans are developed and maintained.

PLANNING CRITERIA. The standards, rules, and other factors developed by managers and interdisciplinary teams for their use in forming judgments about decision making, analysis, and data collection during planning. Planning criteria streamline and simplify the resource management planning actions.

PUBLIC LAND. Any land and interest in land (outside of Alaska) owned by the United States and administered by the Secretary of the Interior through the BLM.

PUBLIC USE. This category may be applied to any cultural property found to be appropriate for use as an interpretive exhibit in place, or for related educational and recreational uses by members of the public.

RECORD OF DECISION (ROD). A document signed by a responsible official recording a decision that was preceded by the preparation of an environmental impact statement.

RECREATION OPPORTUNITY SPECTRUM (ROS). A land delineation system commonly used by federal land management agencies to address the need for a range of recreational opportunities within the planning area.

RESOURCE MANAGEMENT PLAN (RMP). A land use plan that establishes land use allocations, multiple-use guidelines, and management objectives for a given planning area. The RMP planning system has been used by the BLM since about 1980.

REVEGETATE. To provide barren or denuded land with vegetative cover.

RIGHT-OF-WAY. A permit or an easement that authorizes the use of public lands for certain specified purposes, commonly for pipelines, roads, telephone lines, electric lines, reservoirs, etc.; also, the lands covered by such an easement or permit.

ROADS. Vehicle routes that have been improved and maintained by mechanical means to ensure relatively regular and continuous use.

ROCK HOUNDING. An outdoor activity and/or a hobby in which specialists and amateurs "treasure hunt" for rocks, minerals, and crystals at various geographic areas.

ROUTES. A combination of roads, trails, or ways that are used by motorized vehicles, mechanized uses (mountain bikes), pedestrians (hikers), and/or equestrians (horseback riders).

SCENIC QUALITY. The relative worth of a landscape from a visual perception point of view.

SCENIC QUALITY RATING UNIT. A portion of the landscape that displays primarily homogenous visual characteristics of the basic landscape features (land and water form, vegetation, and structures).

SCIENTIFIC USE. This category applies to any cultural property determined to be available for consideration as the subject of scientific or historical study at the present time, using currently available research techniques. Study includes methods that would result in the property's physical alteration or destruction. This category applies almost entirely to prehistoric and historic archaeological properties, where the method of use is archaeological excavation, controlled surface collection, and/or controlled recordation (data recovery). Recommendations to allocate individual properties to this use must be based on documentation of the kinds of data the property is thought to contain and the data's importance for pursuing specified research topics. Properties in this category need not be conserved in the face of a research or data recovery (mitigation) proposal that would make adequate and appropriate use of the property's research importance.

SENSITIVE RESOURCE AREAS. Areas containing stabilized sand dunes, sensitive plant areas, raptor nesting concentration areas, prairie dog towns, 2-mile buffer around sage-grouse leks, mountain plover aggregation areas or potential habitat, big game migration corridors and crucial big game winter ranges, and areas with high-density cultural or paleontological resource sites. Field inspections by BLM will be conducted to verify the presence of these resource values and potential impacts before considering authorization of any proposed development activity on federal surface and/or minerals.

SENSITIVE SPECIES. Species not yet officially listed but that are undergoing status review for listing on the USFWS official threatened and endangered list; species whose populations are small and widely dispersed or restricted to a few localities; and species whose numbers are declining so rapidly that official listing may be necessary.

SCOPING PROCESS. An early and open public participation process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action or project.

SHORT-TERM EFFECT. The effect occurs only during or immediately after implementation of the alternative or action.

SOLITUDE. The state of being alone or remote from habitations or isolation. A lonely, unfrequented, or secluded place. Factors contributing to opportunities for solitude may include size, natural screening, topographic relief, vistas, physiographic variety, and the ability of the user to find a secluded spot.

SPECIAL RECREATION MANAGEMENT AREA (SRMA). An area that possesses outdoor recreation resources or where recreation use causes significant user conflicts, visitor safety problems, or resource damage. SRMAs are established to direct recreation funding and personnel to lands where a commitment has been made to provide a specific recreation activity or experience and public benefit opportunities. This includes a long-term commitment to managing the physical, social, and managerial settings to sustain these activities, experiences, and benefit opportunities.

SPECIAL RECREATION PERMIT (SRP). Various recreational uses that could occur within the NCA require an SRP. SRPs would be issued consistent with the purposes of the NCA and Wilderness to disperse visitor use, protect natural resources, provide for the health and safety of visitors, and provide a fair return for the commercial recreational use of public lands. Activities requiring an SRP include commercial use, competitive use, vending, and organized group activity and event use.

SPECIAL STATUS SPECIES. Plant or animal species known or suspected to be limited in distribution, rare or uncommon within a specific area, and/or vulnerable to activities that may affect their survival. Wildlife and plant species can be federally listed, proposed for listing, or a candidate as endangered or threatened, state-listed, or BLM determined priority species.

STATE IMPLEMENTATION PLAN (SIP). A plan through which a state institutes air quality protection measures that meet federal criteria. When approved by EPA, the state is the delegated federal authority for air quality regulation.

THREATENED SPECIES. Any species or significant population of that species likely to become endangered within the foreseeable future throughout all or a significant portion of its range. Usually includes only those species that have been recognized and listed as threatened by federal and state governments but may include species categorized as rare, very rare, or depleted.

TRADITIONAL USE. This category is to be applied to any cultural resource known to be perceived by a specified social and/or cultural group as important in maintaining the cultural identity, heritage, or well being of the group. Cultural properties assigned to this category are to be managed in ways that recognize the importance ascribed to them and seek to accommodate their continuing traditional use.

TRIBE. Any Native American or Indian group in the continuous United States that the Secretary of Interior recognizes as possessing Tribal status (listed periodically in the *Federal Register*).

VALID EXISTING RIGHTS. Legal interests that attach to a land or mineral estate that cannot be divested from the estate until that interest expires or is relinquished.

VEGETATION TYPE. A plant community with immediately distinguishable characteristics based on and named after the apparent dominant plant species.

VISITOR USE. Passive or active recreational activity on public land, which may involve either consumptive or nonconsumptive use of the resources. Visitor use of the wilderness resource for inspiration, stimulation,

solitude, relaxation, education, pleasure, or satisfaction.

VISUAL RESOURCES. The visible physical features on a landscape, topography, water, vegetation, animals, structures, and other features that comprise the scenery of the area.

VISUAL RESOURCE MANAGEMENT (VRM). The inventory and planning actions taken to identify visual resource values and establish objectives for managing those values, and the management actions taken to achieve the visual resource management objectives.

VISUAL RESOURCE MANAGEMENT CLASSES. VRM classes identify the degree of acceptable visual change within a characteristic landscape. A classification is assigned to public lands based on the guidelines established for scenic quality, visual sensitivity, and visibility.

WILDERNESS AREA. An area designated by Congress as defined by the Wilderness Act of 1964 as a place "where the earth and it community of life are untrammeled by man, where man himself is a visitor who does not remain." Designation is aimed at ensuring that these lands are preserved and protected in their natural condition. Wilderness areas, which are opportunities for solitude or a primitive and unconfined type of recreation; such areas may also contain ecological, geological, or other features that have scientific, scenic, or historical value.

WILDERNESS CHARACTERISTICS. Identified by Congress in the Wilderness Act of 1964—namely, size, naturalness, outstanding opportunities for solitude or a primitive and unconfined type of recreation, and supplemental values such as geological, archaeological, historical, ecological, scenic, or other features. The definition contained in Section 2(c) of the Wilderness Act of 1964 (78 Stat. 891).

WILDERNESS STUDY AREA (WSA). An area designated by federal agency as having wilderness characteristics, thus making it worthy of consideration by Congress for wilderness designation. Although Congress considers whether to designate a WSA as permanent wilderness, the federal agency managing the WSA does so in a manner as to prevent impairment of the area's suitability for wilderness designation.

WILDFIRE. An unwanted wildland fire, regardless of ignition source, which is unplanned, has escaped control, or does not meet management objectives and therefore requires a suppression response.

INDEX

INDEX

Abandoned Mines.....2-2, 2-12, 2-21, 3-70, 3-71, 4-122, 5-9

Access.....ES-3, ES-5, 1-3, 1-7, 1-12, 2-4, 2-5, 2-9, 2-14, 2-15, 2-27, 2-28, 2-34, 2-36, 2-38, 2-42, 2-43, 2-45, 2-49, 2-54, 2-55, 2-58, 2-60, 2-63, 2-66, 2-67, 2-69, 2-70, 2-73, 2-75, 2-80, 2-81, 2-84, 2-85, 2-92, 2-93, 2-94, 2-95, 2-96, 2-100, 2-107, 3-4, 3-6, 3-7, 3-11, 3-12, 3-21, 3-23, 3-34, 3-38, 3-50, 3-64, 3-76, 4-3, 4-4, 4-7, 4-10, 4-11, 4-12, 4-14, 4-15, 4-16, 4-18, 4-19, 4-20, 4-21, 4-22, 4-23, 4-26, 4-27, 4-28, 4-30, 4-31, 4-32, 4-33, 4-34, 4-35, 4-36, 4-37, 4-41, 4-42, 4-45, 4-46, 4-47, 4-50, 4-52, 4-53, 4-55, 4-56, 4-57, 4-60, 4-61, 4-66, 4-69, 4-72, 4-75, 4-78, 4-80, 4-83, 4-84, 4-85, 4-86, 4-87, 4-88, 4-89, 4-90, 4-91, 4-92, 4-93, 4-94, 4-95, 4-96, 4-97, 4-98, 4-106, 4-109, 4-110, 4-112, 4-113, 4-115, 4-116, 4-118, 4-125, 4-126, 4-127, 4-128, 4-129, 4-130, 5-2, 5-4

Air Quality.....2-2, 2-11, 2-12, 3-58, 3-59, 3-60, 3-62, 4-86, 4-89, 4-120, 4-121, 4-133, 5-9, 5-10, 5-12

Anthem Trail.....2-24, 2-40, 2-57, 2-60, 2-83, 2-85, 3-23, 4-12, 4-112

Bighorn Sheep.....1-7, 2-10, 2-20, 2-34, 2-54, 2-79, 2-106, 3-6, 3-50, 4-3, 4-24, 4-55, 4-59, 4-63, 4-91, 4-93, 4-94, 4-108, 4-109, 4-110, 4-113, 4-115, 4-116, 4-118, 4-124, 4-131, 4-135, 4-136

Blue Diamond Cholla.....3-29

Boulder City.....ES-3, ES-6, 1-13, 2-100, 2-107, 3-73, 3-76, 3-77, 4-30, 4-82, 5-2, 5-3, 5-5, 5-7, 5-8, 5-12

Campfires.....2-23, 2-38, 2-58, 2-63, 2-69, 2-84, 2-89, 2-95, 4-9, 4-10, 4-13, 4-14, 4-19, 4-21, 4-26, 4-27, 4-33, 4-37, 4-40, 4-45

Camping.....ES-4, 2-23, 2-24, 2-26, 2-38, 2-40, 2-43, 2-58, 2-63, 2-64, 2-84, 2-89, 2-91, 3-2, 3-6, 3-7, 3-9, 4-7, 4-9, 4-10, 4-13, 4-14, 4-19, 4-21, 4-26, 4-29, 4-33, 4-35, 4-37, 4-40, 4-45, 4-53, 4-61, 4-99, 4-100, 4-101, 4-102, 4-104, 4-105, 4-108, 4-109, 4-110, 4-113, 4-115, 4-118, 4-127, 5-4

Carbon Monoxide.....3-58, 3-60, 3-61

Chuckwalla.....3-36, 3-45, 3-47, 4-5

City of Henderson.....ES-1, ES-3, ES-5, ES-6, 1-1, 1-3, 1-4, 1-8, 1-12, 1-13, 3-4, 3-9, 3-16, 3-21, 3-23, 3-24, 3-55, 3-65, 3-73, 3-76, 3-774-3, 4-5, 4-6, 4-12, 4-16, 4-23, 4-30, 4-64, 4-76, 4-77, 4-80, 4-82, 4-83, 4-86, 4-89, 4-95, 4-96, 4-97, 4-107, 4-125, 4-133, 5-3, 5-5, 5-12

Clark County.....ES-1, ES-3, ES-4, ES-6, 2-1, 2-2, 2-3, 2-4, 2-6, 2-9, 2-10, 2-11, 2-14, 2-16, 2-20, 2-21, 2-24, 2-29, 2-44,

2-71, 2-97, 2-107, 3-2, 3-4, 3-7, 3-12, 3-18, 3-23, 3-24, 3-30, 3-36, 3-38, 3-44, 3-50, 3-55, 3-60, 3-61, 3-72, 3-73, 3-74, 3-75, 3-76, 3-78, 3-79, 3-80, 4-6, 4-37, 4-86, 4-89, 4-120, 4-121, 4-124, 4-125, 4-126, 4-128, 4-129, 4-130, 4-133, 4-134, 4-135, 4-136, 4-137, 5-1, 5-5, 5-7, 5-8, 5-13

Commercial Filming 2-17, 2-102, 4-23, 4-30, 4-55, 4-93

Cooperating Agency ES-3, 1-9, 2-4, 5-7, 5-8, 5-12

Creosote 3-27, 3-29, 3-30, 3-41, 3-42, 3-43, 3-47, 3-55, 4-114, 4-116, 4-119

Cultural Resources Inventory 2-44, 2-71, 2-97, 3-72

Desert Tortoise 1-7, 2-79, 3-36, 3-45, 3-55, 3-78, 4-5, 4-93, 4-94, 4-107, 4-135

Desert Wash Communities 3-27

Disturbance 2-29, 2-43, 2-52, 2-53, 2-54, 2-70, 2-76, 2-78, 2-80, 2-96, 2-103, 2-105, 2-106, 3-4, 3-9, 3-11, 3-12, 3-16, 3-19, 3-52, 3-55, 4-3, 4-11, 4-16, 4-23, 4-30, 4-31, 4-33, 4-34, 4-35, 4-37, 4-38, 4-39, 4-40, 4-43, 4-44, 4-45, 4-48, 4-50, 4-52, 4-54, 4-55, 4-57, 4-58, 4-59, 4-61, 4-62, 4-65, 4-68, 4-69,4-71, 4-72, 4-74, 4-91, 4-92, 4-93, 4-94, 4-97, 4-98, 4-99, 4-100, 4-101, 4-102, 4-103, 4-104, 4-105, 4-106, 4-108, 4-109, 4-110, 4-111, 4-112, 4-113, 4-114, 4-115, 4-116, 4-117, 4-118, 4-119, 4-120, 4-121, 4-122, 4-133, 4-134, 4-135, 4-136, 4-137, 5-4

Dogs 2-23, 2-24, 2-28, 2-38, 2-40, 2-43, 2-58, 2-63, 2-69, 2-84, 2-89, 2-95, 4-10, 4-13, 4-15, 4-18, 4-21, 4-25, 4-27, 4-28, 4-33, 4-35, 4-40, 4-41, 4-45, 4-46, 4-61, 4-107, 4-109, 4-111, 4-113, 4-115, 4-116, 4-117, 4-118

Dutchman Pass Trailhead 2-45, 2-49, 2-55, 2-73, 2-75, 2-81, 2-100, 2-102, 4-23, 4-29, 4-55, 4-68, 4-70, 4-74, 4-77, 4-79, 4-82, 4-84, 4-85, 4-86, 4-87, 4-89, 4-95, 4-114, 4-116, 4-119

Eldorado Valley 3-56, 3-58, 3-78

Endangered Species ES-4, 2-3, 3-30, 3-34, 4-132, 5-6

Environmental Protection Agency 3-58

Equestrian ES-4, 2-23, 2-24, 2-38, 2-42, 2-57, 2-58, 2-60, 2-61, 2-69, 2-83, 2-85, 2-87, 2-95, 4-4, 4-8, 4-12, 4-18, 4-23, 4-24, 4-29, 4-30, 4-32, 4-39, 4-44, 4-50, 4-52, 4-56, 4-60, 4-65, 4-68, 4-70, 4-71, 4-73, 4-74, 4-75, 4-76, 4-80, 4-83, 4-85, 4-87, 4-95, 4-96, 4-100, 4-102, 4-105, 4-108, 4-109, 4-110, 4-112, 4-113, 4-115, 4-116, 4-117, 4-118, 4-119, 4-126, 4-128

Federal Land Policy and Management Act ES-1, 1-7, 3-12, 5-4

Fire Management Activity Plan 1-12

Fish and Wildlife Service 3-34

Geocaching 2-23, 2-38, 2-58, 2-84, 4-9, 4-10, 4-13, 4-15, 4-19, 4-25, 4-33, 4-35, 4-40, 4-45, 4-53, 4-128

Gila Monster 1-7, 3-36, 3-40, 3-41, 3-45, 3-47, 3-48, 4-5

Hazardous Materials 2-2, 2-12, 2-107, 3-72, 4-1, 4-133

Hidden Valley Allotment 2-21, 3-62, 3-63, 3-64, 4-98, 4-125

Hidden Valley Trailhead ES-5, 2-4, 2-45, 2-49, 2-57, 2-66, 2-67, 2-73, 2-75, 2-80, 2-83, 2-85, 2-89, 2-93, 2-94, 2-95, 2-100, 4-23, 4-54, 4-59, 4-63, 4-68, 4-70, 4-71, 4-74, 4-77, 4-79, 4-82, 4-84, 4-85,4-86, 4-87, 4-88, 4-89, 4-114, 4-116, 4-118, 4-119

Hiking ES-3, ES-4, 1-7, 2-4, 2-5, 2-14, 2-23, 2-28, 2-38, 2-40, 2-41, 2-42, 2-43, 2-54, 2-58, 2-60, 2-65, 2-69, 2-80, 2-81, 2-85, 2-92, 2-95, 3-2, 3-4, 3-6, 3-7, 3-9, 4-4, 4-7, 4-8, 4-12, 4-13, 4-14, 4-17, 4-23, 4-24, 4-27, 4-30, 4-32, 4-35, 4-39, 4-41, 4-44, 4-46, 4-50, 4-52, 4-56, 4-60, 4-65, 4-66, 4-68, 4-69, 4-71, 4-75, 4-76, 4-83, 4-84, 4-85, 4-87, 4-88, 4-89, 4-99, 4-100, 4-102, 4-105, 4-106, 4-108, 4-109, 4-110, 4-113, 4-115, 4-116, 4-117, 4-118, 4-126, 5-4

Hunting.....1-4, 2-20, 2-38, 2-40, 2-63, 2-92, 3-6, 3-12, 3-13, 3-14, 3-34, 3-39, 3-50, 3-52, 4-6, 4-13, 4-14, 4-18, 4-19, 4-21, 4-25, 4-108

Interpretive Strategy 3-21

Invasive Species.....3-32, 4-39, 4-44, 4-48, 4-100, 4-101, 4-102, 4-103, 4-104, 4-105, 4-107

Law Enforcement 2-6, 2-20, 2-27, 2-75, 2-100, 5-9

Licensed Motorized Vehicles 2-9, 2-19, 2-34, 2-49, 2-76, 2-103, 4-94

Litter Cleanup Plan 1-3, 2-16

Livestock Grazing.....2-11, 2-21, 2-34, 2-54, 2-80, 2-106, 3-15, 3-62, 4-12, 4-17, 4-24, 4-31, 4-35, 4-39, 4-44, 4-49, 4-50, 4-65, 4-98, 4-108, 4-122, 4-123, 4-124, 4-125

Management Situation Analysis ES-3, 2-3, 5-2

Mining Claims.....1-7, 2-3, 3-11, 3-18, 3-68

Mojave Desert 1-1, 1-7, 3-1, 3-14, 3-24, 3-27, 3-34, 3-47

Monitoring 2-13, 2-14, 2-15, 2-20, 2-23, 2-36, 2-43, 2-52, 2-54, 2-55, 2-70, 2-79, 2-80, 2-81, 2-96, 2-103, 2-106, 3-6, 3-50, 3-60, 4-6, 4-7, 4-33, 4-38, 4-42, 4-47, 4-49, 4-51, 4-52, 4-53, 4-57, 4-61, 4-101, 4-133

Mountain Biking.....1-7, 2-4, 2-23, 2-24, 2-40, 2-54, 2-55, 2-60, 2-80, 2-81, 2-85, 3-4, 4-4, 4-8, 4-12, 4-18, 4-23, 4-24, 4-30, 4-50, 4-65, 4-69, 4-72, 4-75, 4-76, 4-83, 4-85,

4-87, 4-89, 4-108, 4-109, 4-110, 4-112, 4-115, 4-118, 4-127, 4-128, 5-4

National Landscape Conservation System....1-8, 2-1

Native American....1-1, 1-12, 1-13, 2-8, 2-15, 2-75, 2-100, 3-14, 3-16, 3-78, 3-79, 4-2, 4-58, 4-59, 4-63, 4-125, 4-130, 5-4

Nevada Natural Heritage Program....3-30, 3-36, 3-38, 3-44

Nighttime Use....2-24, 2-28, 2-40, 2-43, 2-63, 2-69, 2-89, 2-95, 4-9

Non-Attainment Area....2-107, 3-59

Notice of Intent....5-1, 5-2

Noxious Weeds....2-19

Organized Group....2-13, 2-27, 2-40, 2-63, 2-92, 4-6, 4-9, 4-13, 4-19, 4-20, 4-26, 4-27, 4-32, 4-36, 4-40, 4-41, 4-45, 4-51, 4-53, 4-56, 4-61

Outfitters....2-13, 4-6, 4-13, 4-19, 4-26, 4-28, 4-58, 4-128

Ozone....3-58, 3-60, 3-61, 4-121

Particulate Matter....3-58, 3-60, 3-61, 4-121

Permits....2-13, 2-17, 2-21, 2-31, 2-34, 2-41, 2-49, 2-54, 2-65, 2-66, 2-67, 2-76, 2-79, 2-93, 2-102, 2-106, 3-7, 4-6, 4-7, 4-9, 4-11, 4-13, 4-16, 4-19, 4-20, 4-26, 4-28, 4-41, 4-46, 4-78, 4-81, 4-90, 4-92, 4-93, 4-125, 4-126, 4-127, 4-128

Phainopepla....3-36, 3-45, 3-50, 3-52, 4-5

Planning Criteria....1-12, 2-1, 2-2, 5-1

Preferred Alternative....2-4, 2-54

Public Awareness Campaign....4-7

Quo Vadis Trailhead....2-55, 2-73, 2-75, 2-81, 2-100, 2-102, 4-23, 4-25, 4-30, 4-55, 4-70, 4-74, 4-79, 4-82, 4-85, 4-87, 4-89, 4-116, 4-119

Record of Decision....2-96, 4-34, 4-38, 4-43, 4-48

Recreation Monitoring Plan....2-13, 2-23, 2-36, 2-55, 2-81

Recreation Opportunity Spectrum....4-8, 4-108

Recreational Target Shooting....2-23, 2-38, 2-58, 2-84, 2-107, 3-6, 4-35, 4-53, 5-4

Rock Art Site Area of Critical Environmental Concern....2-30, 2-46, 3-17

Rock Art Sites....1-5

Rock Hounding....2-94, 4-9, 4-13, 4-18, 4-25, 4-53, 4-128, 4-129

Sahara mustard....3-32

Scenic Quality....3-16, 3-19, 4-34, 4-38, 4-43, 4-48, 4-64, 4-65, 4-66, 4-67, 4-68, 4-69, 4-70, 4-71, 4-72, 4-73, 4-74

Scoping 1-4, 1-7, 1-10, 2-1, 2-2, 2-6, 2-107, 4-2, 5-1, 5-2, 5-3, 5-4, 5-7

Self-Guided Tours 2-27, 2-41, 2-65, 2-66, 2-93

Sensitive Resource Areas 2-58, 2-84, 4-8, 4-18, 4-21, 4-25, 4-28, 4-40, 4-45, 4-98, 4-101, 4-104, 4-115

Special Recreation Permit 2-13, 3-7, 4-9, 4-13, 4-19, 4-26

Special Status Species 1-7, 2-9, 2-10, 2-19, 2-20, 2-34, 2-52, 2-54, 2-76, 2-79, 2-80, 2-103, 2-106, 3-29, 3-36, 3-38, 3-45, 4-55, 4-59, 4-63, 4-85, 4-87, 4-92, 4-93, 4-94, 4-97, 4-98, 4-99, 4-101, 4-103, 4-104, 4-106, 5-11, 5-12

State Historic Preservation Office 1-13, 2-15, 5-5, 5-7, 5-8, 5-13

State Implementation Plan 3-61, 4-120

Sutor Hills Trailhead 2-100, 2-102, 4-30, 4-74, 4-82, 4-87, 4-89, 4-119

Tamarisk 3-32

Trails 1-3, 2-3, 2-4, 2-5, 2-6, 2-13, 2-20, 2-23, 2-24, 2-28, 2-34, 2-40, 2-41, 2-42, 2-43, 2-52, 2-54, 2-55, 2-57, 2-58, 2-60, 2-63, 2-65, 2-66, 2-67, 2-69, 2-76, 2-79, 2-80, 2-83, 2-85, 2-89, 2-93, 2-94, 2-95, 2-102, 3-2, 3-4, 3-6, 3-7, 3-18, 3-23, 3-32, 4-6, 4-8, 4-9, 4-12, 4-13, 4-14, 4-15, 4-17, 4-18, 4-20, 4-21, 4-24, 4-25, 4-27, 4-28, 4-31, 4-32, 4-33, 4-34, 4-35, 4-36, 4-37, 4-39, 4-40, 4-41, 4-42, 4-44, 4-45, 4-46, 4-47, 4-50, 4-51, 4-52, 4-53, 4-55, 4-56, 4-57, 4-59, 4-60, 4-61, 4-62, 4-64, 4-65, 4-66, 4-67, 4-68, 4-69, 4-71, 4-72, 4-73, 4-75, 4-76, 4-78, 4-79, 4-80, 4-81, 4-83, 4-84, 4-85, 4-87, 4-88, 4-89, 4-92, 4-93, 4-95, 4-96, 4-97, 4-98, 4-99, 4-100, 4-101, 4-102, 4-104, 4-105, 4-106, 4-107, 4-108, 4-109, 4-110, 4-111, 4-112, 4-115, 4-116, 4-117, 4-118, 4-119, 4-127, 4-128, 4-129, 4-133, 4-134, 4-136, 5-4

Two-Tone Beardtongue 3-29, 4-4, 4-85

Vegetation Communities 4-100, 4-101, 4-106, 4-135

Visual Resource Inventory 2-45, 2-71, 2-98, 3-19, 3-20

Wilderness Character 3-12, 2-14, 2-27, 2-29, 2-41, 2-65, 2-85, 2-92, 2-93

Wilderness Management Plan 2-27, 2-41, 2-44, 2-65, 2-71, 2-92, 2-97, 4-36, 4-40, 4-46

Wilderness Study Area 2-3

Wildlife Water Developments 2-20, 2-24, 2-28, 2-60

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REFERENCES

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APPENDIX A

Applicable Laws and Management Guidance

APPLICABLE LAWS AND MANAGEMENT GUIDANCE

This Draft Resource Management Plan/Environmental Impact Statement (RMP/EIS) complies with all applicable laws, regulations, and management guidance that direct the U.S. Department of Interior (DOI) Bureau of Land Management (BLM) resource management activities. This appendix consists of four sections. The first section lists the statutes and regulations that are applicable to this Draft RMP/EIS. The second section provides program-specific planning criteria that guided the development of this document. The third section contains standard operating procedures that provided management guidance in document preparation. Lastly, the fourth section consists of Titles II and IV of the Clark County Act that established, respectively, the Sloan Canyon National Conservation Area (NCA) and the North McCullough Wilderness Area.

1.0 ESTABLISHMENT OF THE SLOAN CANYON NATIONAL CONSERVATION AREA AND DEVELOPMENT OF THE RESOURCE MANAGEMENT PLAN

The Clark County Conservation of Public Land and Natural Resources Act of 2002 [Public Law 107-282] is "... to conserve, protect, and enhance resources for the benefit and enjoyment of present and future generations the cultural, archaeological, natural, wilderness, scientific, geological, historical, biological, wildlife, educational, and scenic resources of [the Sloan Canyon National] Conservation Area." (See full text in second section)

The Federal Land Policy and Management Act (FLPMA) of 1976, as amended (43 United States Code [U.S.C.] 1701 et seq.), governs the use of federal lands administered by the BLM. Access to and use of public lands administered by the BLM are primarily governed by the regulations regarding the establishment of rights-of-way and withdrawals of public domain land from public use.

Sec. 102 (a) (7) and (8) sets forth the policy of the United States concerning the management of BLM lands.

Sec. 201 requires the Secretary of the Interior to prepare and maintain an inventory of all BLM lands and their resources and other values, giving priority to Areas of Critical Environmental Concern; and, as funding and workforce are available, to determine the boundaries of the public lands, provide signs and maps to the public, and provide inventory data to State and local governments.

Sec. 202 (a) requires the Secretary of the Interior, with public involvement, to develop, maintain, and when appropriate, revise land use plans that provide tracts or areas for the use of the BLM lands.

Sec. 202 (c) (9) requires that land use plans for BLM lands be consistent with tribal plans and, to the maximum extent, with applicable Federal laws and State and local plans.

Sec. 202 (d) provides that all public lands, regardless of classification, be subject to inclusion in land use plans and that the Secretary may modify or terminate classifications consistent with land use plans.

Sec. 202 (f) and Sec. 309 (e) provide that Federal, State, and local governments and the public be given adequate notice and opportunity to comment on the formulation of standards and criteria for, and to participate in, the preparation and execution of plans and programs for the management of the public lands.

Sec. 302 (b) recognizes the entry and development rights of mining claimants, while directing the Secretary to prevent unnecessary or undue degradation of the public lands.

The National Environmental Policy Act (NEPA) (42 U.S.C. 4321 et seq.) requires the preparation of EISs for federal projects that may have a significant effect on the environment. NEPA requires systematic, interdisciplinary planning to ensure the integrated use of natural and social sciences and environmental design arts in making decisions about major federal actions that may have a significant effect on the environment. The procedures required under NEPA are implemented through the Council on Environmental Quality (CEQ) regulations at 40 *Code of Federal Regulations* (CFR) 1500.

Executive Order 12630, *Governmental Actions and Interference With Civil Constitutionally Protected Property Rights*, 53 *Federal Register* 8859, requires that Executive departments and agencies review their actions carefully to prevent unnecessary takings, account in decision-making for those takings that are necessitated by statutory mandate, and assist federal departments and agencies in undertaking such reviews and in proposing, planning, and implementing actions.

1.1 Recreation

The National Trails System Act of 1968, as amended (16 U.S.C. 1241–1249), establishes a national trails system of scenic, historic, and recreation trails provided to meet outdoor recreation needs; to promote the enjoyment, appreciation, and preservation of open-air, outdoor areas and historic resources; and to encourage public access and citizen involvement.

Executive Order 11989, *Off-Road Vehicles on Public Lands* (May 24, 1977), sets forth an exclusion from the definition of off-highway vehicles (OHV). The respective agency head shall, whenever he or she determines that the use of OHVs will cause or is causing considerable adverse effects on the soil, vegetation, wildlife, wildlife habitat, or cultural or historic resources of particular areas or trails of the public lands, immediately close such areas or trails to the type of OHVs causing such effects, until determined that such adverse effects have been eliminated and that measures have been implemented to prevent future recurrence.

1.2 Wilderness

The Wilderness Act of 1964, as amended (16 U.S.C. 1131 et seq.), authorizes the President to make recommendations to the Congress for federal lands to be aside for preservation as wilderness.

1.3 Cultural

The National Historic Preservation Act, as amended (16 U.S.C. 470), expands protection of historic and archeological properties to include those of national, State, and local significance and directs federal agencies to consider the effects of proposed actions on properties eligible for or included in the National Register of Historic Places (NRHP).

The Archaeological Resources Protection Act of 1979 (16 U.S.C. 470) secures the protection of archaeological resources and sites that are on public lands and Indian lands and fosters increased cooperation and exchange of information among governmental authorities, the professional archaeological community, and private individuals having collections of archaeological resources and data that were obtained before October 31, 1979.

The Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. 3001) addresses the rights of lineal descendants, Indian tribes, and Native Hawaiian organizations to Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony. It requires federal agencies and museums to provide information about Native American cultural items to parties with standing and, upon presentation of a valid request, dispose of or repatriate these objects to them.

The American Indian Religious Freedom Act of 1978 (42 U.S.C. 1996) establishes a national policy to protect and preserve the right of America Indians to exercise traditional Indian religious beliefs or practices.

Protection and Enhancement of the Cultural Environment (Executive Order 11593) directs federal agencies to locate, inventory, nominate, and protect federally owned cultural resources eligible for the NRHP and to ensure that their plans and programs contribute to preservation and enhancement of non-federally owned resources.

Executive Order 13007, *Indian Sacred Sites*, 61 *Federal Register* 26771 (1996), requires federal agencies to the extent practicable, permitted by law, and not clearly inconsistent with essential agency functions to—

- Accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners
- Avoid adversely affecting the physical integrity of such sacred sites.

Secretarial Order 3206 (American Indian Tribal Rights, Federal Tribal Trust Responsibilities, and the Endangered Species Act [ESA]) requires DOI agencies to consult with Indian tribes when agency actions to

protect a listed species, as a result of compliance with ESA, affect or may affect of Indian lands, tribal trust resources, or the exercise of American Indian tribal rights.

1.4 Vegetation

Clark County Multiple Species Habitat Conservation Plan (MSHCP) provides the U.S. Fish and Wildlife Service (USFWS) authority to issue permits, which allow "take" of threatened or endangered species resulting from otherwise lawful activities on non-federal properties within the county, and "take" of threatened and endangered species currently unlisted but may become listed in the future. The purpose of the MSHCP is to "achieve balance between long-term conservation and recovery of the diversity of natural habitats and native species of plants and animals that make up an important part of the natural heritage of Clark County; and orderly and beneficial use of land in order to promote the economy, health, well-being, and custom and culture of the growing population of Clark County."

The Federal Noxious Weed Act of 1974, as amended (7 U.S.C. 2814), provides for the designation of a lead office and a person trained in the management of undesirable plants, establishment and funding of an undesirable plant management program, completion and implementation of cooperative agreements with state agencies, and establishment of integrated management systems to control undesirable plant species.

Executive Order 13112, *Invasive Species*, provides that no federal agency shall authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species and that all feasible and prudent measures to minimize risk or harm will be taken in conjunction with the actions.

1.5 Wildlife

The Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.), provides a program for the conservation of threatened and endangered species and the ecosystems on which those species rely. If a proposed action could affect threatened or endangered species or their habitat, the federal agency must assess the potential impacts and develop measures to minimize those impacts. The agency then must consult formally with the USFWS (part of the DOI) and the National Marine Fisheries Service (NMFS) (part of the Department of Commerce), as required under Section 7 of the ESA. The outcome of this consultation would be a biological opinion by the USFWS or the NMFS that stated whether the proposed action would jeopardize the continued existence of the species under consideration.

Clark County Multiple Species Habitat Conservation Plan provides USFWS authority to issue permits that allow "take" of threatened or endangered species resulting from otherwise lawful activities on non-federal properties within the county; and "take" of threatened and endangered species currently unlisted but may become listed in the future. The purpose of the MSHCP is to "achieve balance between long-term conservation and recovery of the diversity of natural habitats and native species of plants and animals that

make up an important part of the natural heritage of Clark County; and orderly and beneficial use of land in order to promote the economy, health, well-being, and custom and culture of the growing population of Clark County."

The Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-711) manages and protects migratory bird species through consultation with State and local governments and protection of land and water resources necessary for the conservation of migratory birds. Under the act, taking, killing, or possessing migratory birds is unlawful.

1.6 Water Resources and Quality

The Clean Water Act of 1987, as amended (33 U.S.C. 1251), establishes objectives to restore and maintain the chemical, physical, and biological integrity of the nation's water.

The Federal Water Pollution Control Act (33 U.S.C. 1323) requires the federal land manager to comply with all Federal, State, and local requirements, administrative authority, process, and sanctions regarding the control and abatement of water pollution in the same manner and to the same extent as any non-governmental entity.

The Safe Drinking Water Act (42 U.S.C. 201) is designed to make the nation's waters "drinkable" as well as "swimmable." Amendments in 1996 establish a direct connection between safe drinking water and watershed protection and management.

1.7 Air Quality

The Clean Air Act (CAA) of 1990, as amended (42 U.S.C. 7418), requires federal agencies to comply with all Federal, State, and local requirements regarding the control and abatement of air pollution. This includes abiding by the requirements of State Implementation Plans.

Clark County Air Quality Regulations specify the requirements for air permitting and monitoring to implement CAA and state ambient air quality standards.

1.8 Livestock Grazing

The Taylor Grazing Act of 1934 (43 U.S.C. 315)—"[T]he Secretary of the Interior is authorized, in his discretion, by order to establish grazing districts or additions thereto…of vacant unappropriated and unreserved lands from any part of the public domain…which in his opinion are chiefly valuable for grazing and raising forage crops…." The act also provides for the classification of lands for particular uses.

The Public Rangelands Improvement Act of 1978 (43 U.S.C. 1901) provides that the public rangelands be managed so that they become as productive as feasible in accordance with management objectives and the land use planning process established pursuant to 43 U.S.C. 1712.

Executive Order 12548 provides for establishment of appropriate fees for the grazing of domestic livestock on public rangelands and directs that the fee shall not be less than $1.35 per animal unit month.

1.9 Minerals

The Materials Act of 1947, as amended (30 U.S.C. 601–604 et seq.), provides for the sale of common variety materials for personal, commercial, or industrial uses and for free use for Federal, State, and local governmental entities. The sales of mineral materials are controlled by the regulations listed in 43 CFR 3600.

The Mining and Mineral Policy Act of 1970 (30 U.S.C. 21a) establishes a policy of fostering development of economically stable mining and minerals industries, their orderly and economic development, and studying methods for disposal of waste and reclamation.

1.10 Hazardous Materials

The Resource Conservation and Recovery Act, as amended by the Federal Facility Compliance Act of 1992 (42 U.S.C. 6901–6992), authorizes the EPA to manage, by regulation, hazardous wastes on active disposal operations. This act waives sovereign immunity for federal agencies with respect to all Federal, State, and local solid and hazardous waste laws and regulations. Federal agencies are subject to civil and administrative penalties for violations and to cost assessments for the administration of the enforcement.

1.11 Socioeconomics and Environmental Justice

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, 49 *Federal Register* 7629 (1994), requires that each federal agency consider the impacts of its programs on minority populations and low income populations.

2.0 PLANNING CRITERIA FOR THE SLOAN CANYON NATIONAL CONSERVATION AREA RESOURCE MANAGEMENT PLAN

Introduction

Federal regulations guide BLM's development of RMPs and their corresponding planning criteria. These regulations (43 CFR 1610.4-2) require the preparation of planning criteria to ensure that management decisions contained in forthcoming RMPs are tailored to the issues that prompted the planning effort and to help BLM gather the data that is scaled appropriately within the scope of the planning effort. Specifically, these regulations state—

"The District or Area Manager shall prepare criteria to guide development of the resource management plan or revision, to ensure that it is tailored to the issues previously identified and to ensure that unnecessary data collection and analyses are avoided. Planning criteria shall generally be based upon applicable law, Director and State Director guidance, the results of public participation and coordination with other federal agencies, State and local governments and Indian tribes. Proposed planning criteria, including any significant changes, shall be made available for public comment prior to being approved by the District manager for use in the planning process. Planning criteria may be changed as planning proceeds, based on public suggestions and the findings of the various studies and assessments" (43 CFR 1610.4-2).

Planning criteria are the constraints that guide the development of the plan and determine how the planning team approaches the development of alternatives and ultimately selection of a Preferred Alternative. They are based on standards prescribed by applicable laws and regulations, agency guidance, the result of consultation and coordination with the public, other Federal, State, and local agencies and governmental entities, and Native American tribes, analysis of information pertinent to the planning area, and professional judgment.

Although planning criteria establish the sideboards for the planning process, they may be changed based on reasonable findings of issue analyses and public input to ensure that the planning process is responsive to these aspects. The criteria are published and made available to the public to ensure that public concerns are adequately represented in the criteria and the overall RMP.

2.1 Sloan Canyon National Conservation Area

The Clark County Conservation of Public Land and Natural Resources Act of 2002 (Act) established the Sloan Canyon NCA to conserve, protect, and enhance for future generations the cultural, archaeological, natural, wilderness, scientific, geological, historical, biological, wildlife, educational, and scenic resources of the conservation area.

The legislation mandates that BLM "in consultation with the State of Nevada, the City of Henderson, Clark County, and any other interested persons" develop a "management plan for the conservation area within three years of the enactment of the act (by November 6, 2005). The management plan shall be developed

with full public participation and shall describe the appropriate uses and management of the conservation area consistent with the provisions of the act. The plan may incorporate appropriate decisions contained in any current management or activity plan for the area and information developed in previous studies of the lands within or adjacent to the conservation area."

2.2 Planning Criteria

This section is split into two categories of criteria: 1) laws and regulations and 2) policy statements dealing with the planning criteria. The planning criteria were developed using information contained in the act that established the NCA, relevant sections of existing BLM land use plans, available data, public input obtained during the scoping period, and input from BLM personnel. These preliminary planning criteria are subject to modification, as needed, throughout the planning process.

2.2.1 Laws and Regulations

Clark County Conservation of Public Land and Natural Resources Act of 2002. Per Title IV of the Clark County Act, the management plan will—

- Be completed by November 6, 2005
- Be developed in consultation with the State of Nevada, City of Henderson, Clark County, and any interested persons
- Describe the appropriate uses and management of the Sloan Canyon NCA
- Authorize the use of motorized vehicles in the NCA—
  - For installing, repairing, maintaining, and reconstructing water development projects, including guzzlers, that would enhance the NCA by promoting healthy, viable, and more naturally distributed wildlife populations
  - Subject to any limitations that are not more restrictive than the limitations on such uses authorized in wilderness areas under Section 208
  - Except as needed for administrative purposes or to respond to an emergency, the use of motorized vehicles in the NCA shall be permitted only on roads and trails designated for the use of motorized vehicles by the management plan
  - Include or provide recommendations on ways of minimizing the visual impacts of such activities on the NCA
- Include a plan for litter cleanup and public lands awareness campaign on public lands in and around the NCA

- Include a recommendation on the location for a ROW for a rural road to provide the City of Henderson with access to the NCA, in accordance with the application numbered N-65874

- Recognize valid existing rights within the NCA and Wilderness and withdraw the following: all forms of entry and appropriation under public land law; location, entry, and patent under mining laws; and operation of mineral leasing, mineral materials, and geothermal leasing laws

- Recognize that the Clark County Act does not affect the jurisdiction of the State of Nevada with respect to fish and wildlife, including hunting, fishing, and trapping in the NCA

- Not create a buffer zone around the NCA or on lands adjacent to the NCA

- Convey to the City of Henderson the public right of way (ROW) requested for public trail purposes under the application numbered N-76312 and the public ROW requested for public trail purposes under the application numbered N-65874.

The Clark County Act (Title IV) authorizes the sale of nearby Federal Parcel Tract A and dictates the use of the proceeds from the sale. The sale is not part of the planning process; note, however, that the sale of Tract A occurred in November 2003 for $66.5 million. The proceeds from the sale are available for—

- Use in the general education program of the State of Nevada (5 percent)
- Construction and operation of facilities to support the management of the Sloan Canyon NCA
- Construction and repair of trails and roads within the NCA authorized under the management plan
- Research on and interpretation of the archaeological and geological resources of the NCA
- Conservation and research relating to the NCA
- Any other purpose that the Secretary determines to be consistent with the purpose described in Section 602.

The Clark County Act (Title II) designated the North McCullough Wilderness Area (14,763 acres) as a component of the National Wilderness Preservation System and makes certain management provisions for all wilderness areas established by the act. A wilderness management plan will be developed for the area as part of the RMP process.

- In addition to the Clark County Act, the completed RMP will comply with the following applicable laws and regulations. Additional information on these laws can be found in the first section of Appendix A.
  - Wilderness Act of 1964, as amended (16 U.S.C. 1131 et seq.)
  - FLPMA of 1976, as amended
  - National Environmental Policy Act
  - Clean Air Act of 1987, as amended (33 U.S.C. 1251)

- Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.)
- National Historic Preservation Act of 1966, as amended (16 U.S.C. 470)
- Archaeological Resources Protection Act of 1979 (16 U.S.C. 470)
- American Indian Religious Freedom Act of 1978 (42 U.S.C. 1996)
- Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. 3001)
- Executive Order 11989, *Off-Road Vehicles on Public Lands* (May 24, 1977)
- Executive Order 13007, *Indian Sacred Sites* (61 *Federal Register* 26771 [1996])
- Secretarial Order 3206 (American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act)
- The RMP will be consistent with the five objectives of the NLCS:
  - » Above all, commit to conserving, protecting, and restoring special values of the landscape, as directed by BLM's Organic Act (FLPMA)
  - » Build and sustain community relationships to foster collaborative stewardship
  - » Continue to manage compatible uses and valid existing rights, consistent with the values for which the area was designated
  - » Provide opportunities for the individual to explore and discover these special areas
  - » Foster scientific research and public education and acquire a better understanding of how to manage these landscapes.
- Clark County MSHCP.

2.2.2 Policy Statements

The following policy statements underlie all decisions contained in the RMP:

Decisions in the RMP will apply to public lands managed by BLM within the NCA and the Wilderness. The litter cleanup element of the plan will also apply to surrounding BLM-managed federal lands. No other public lands in the NCA vicinity of the NCA will be subject to the decisions contained in the RMP.

The Sloan Canyon NCA RMP will not address the NCA or Wilderness boundary adjustments or proposals to eliminate or modify the designations in accordance with Title VI of the Clark County Act.

A collaborative and multijurisdictional approach will be used, where possible, to determine the desired future condition of the NCA and the Wilderness. BLM will work cooperatively with, and may include members from, the State of Nevada, tribal governments, county and municipal governments, and other federal agencies. Public participation will be encouraged throughout the planning process.

The planning process will involve consultation with Native American Tribal Governments and will provide strategies for the protection of recognized traditional uses and cultural values.

Decisions in the RMP will strive to be compatible with existing plans and policies of adjacent local, State, and federal agencies as long as the decisions are in conformance with Congressional direction for management of the NCA and Wilderness established by the legislation.

Where appropriate, existing management decisions contained in previous land use plans, activity plans, and etc. may be incorporated into the RMP.

The RMP will review how valid existing rights are verified within the NCA and Wilderness.

Planning decisions will include the preservation, conservation, enhancement of important historic, cultural, archaeological, natural, wilderness, and scientific components of public land resources.

The RMP will maintain adequate public access for the reasonable use and enjoyment of the area.

The RMP will address transportation, route management, and access, and it will identify which routes and roads should remain open to accommodate resource users, including recreationists, protection of resource values, and administrative needs. The plan will also address where additional access may be needed for administrative and recreational uses of BLM-managed lands.

Because portions of the NCA are located in a nonattainment area for air quality, uses, and management decisions that affect the air quality of the NCA may be limited.

Comprehensive Land Health Standards developed by the BLM Las Vegas Field Office will apply to all activities and uses. Adjustments to current livestock grazing or wildlife forage allocations will be considered in accordance with Rangeland Health Standards and Guides and will be applicable to all alternatives.

Federal Geographic Data Committee standards and other applicable BLM standards will be followed.

As part of the planning process, BLM will monitor the progress of the helicopter project near the NCA and coordinate with Clark County on any issues that should be monitored or addressed in the RMP.

3.0 STANDARD OPERATING PROCEDURES

This section contains a list of standard operating procedures that provide guidance for activities related to the management of the Sloan Canyon NCA. This list is not comprehensive; rather, it represents the types of procedures with which BLM would comply.

Wilderness Area

Wildlife in the North McCullough Wilderness Area would be managed in accordance with the Memorandum of Understanding between the BLM and the Nevada Department of Wildlife (NDOW) ([BLM 2003c] MOU 6300-NV930-0402) entitled, "Wildlife Management in Nevada BLM Wilderness Areas," or other relevant laws, regulations, policies, or agreements.

The BLM would follow a Minimum Requirement Decision Guide to determine whether management actions have the potential to negatively affect the resources within and the aesthetic values of the Wilderness.

Cultural Resources

In areas that might be affected by RMP actions, cultural resources would be identified, and their eligibility for the NRHP would be determined through the Nevada State Historic Preservation Officer protocol. BLM will develop and carry out an appropriate treatment plan for resources determined eligible and that might be affected.

Lands and Realty

The Black Mountain communication sites would be managed in accordance with the *Black Mountain Communication Site Plan* (Appendix G) or current management direction.

Vegetation Management

Vegetation in the Sloan Canyon NCA would be managed to meet the requirements of the *MSHCP*.

BLM would follow Nevada BLM's "Partners Against Weeds—An Action Plan for the BLM" (BLM 1996) and general restoration plan for Las Vegas Field Office. Noxious and invasive weeds would be managed under integrated weed management principals.

BLM would manage the NCA in accordance with the Mojave-Southern Great Basin Resource Advisory Council Standards and Guidelines for Rangeland Health.

Wildlife Management

Discretionary activities proposed in bighorn sheep habitat would be evaluated on a case-by-case basis. Authorization would be considered if the proposed actions are consistent with the goals and objectives of the Rangewide Plan for Managing Bighorn Sheep Habitat on Public Lands (BLM 1998c) and other applicable agreements, plans, laws, and regulations.

Wildlife management would be coordinated with appropriate Federal, State, and local agencies and with special interest groups (e.g., Partners in Flight).

Wildlife Fire Management

The fire management would be implemented for the Sloan Canyon Fire Management Unit based on objectives included in the Las Vegas Field Office *Fire Management Plan* (2004h).

Water Resources and Quality

Contributions would be minimized from point and non-point sources of pollution resulting from public land management actions in accordance with the best management practices identified by the State of Nevada.

Air Quality

Conformity determinations would be included, where applicable, in activity plans and associated environmental documentation.

Air quality dust control permits would be obtained from the Clark County Department of Air Quality and Environmental Management (DAQEM) before the approval of any activity within the NCA.

Abandoned Mines

BLM would coordinate with the Nevada Division of Mines to ensure that the entire NCA and appropriate surrounding area have been surveyed for abandoned mines.

If additional abandoned mines are found within the NCA, then BLM would either remediate per the *Final Programmatic Environmental Assessment for Remediation of Abandoned Mine Safety Hazards*, or, if necessary, prepare site-specific environmental assessment.

4.0 CLARK COUNTY CONSERVATION OF PUBLIC LAND AND NATURAL RESOURCES ACT OF 2002 (PUBLIC LAW 107-282-NOV. 6, 2002)

TITLE II--WILDERNESS AREAS

SEC. 201. FINDINGS.

The Congress finds that--

(1) public land in the County contains unique and spectacular natural resources, including--

(A) priceless habitat for numerous species of plants and wildlife; and

(B) thousands of acres of pristine land that remain in a natural state;

(2) continued preservation of those areas would benefit the County and all of the United States by--

(A) ensuring the conservation of ecologically diverse habitat;

(B) conserving primitive recreational resources; and

(C) protecting air and water quality.

SEC. 202. ADDITIONS TO NATIONAL WILDERNESS PRESERVATION SYSTEM.

(a) ADDITIONS- The following land in the State is designated as wilderness and as components of the National Wilderness Preservation System:

(1) ARROW CANYON WILDERNESS- Certain Federal land managed by the Bureau of Land Management, comprising approximately 27,530 acres, as generally depicted on the map entitled `Arrow Canyon', dated October 1, 2002, which shall be known as the `Arrow Canyon Wilderness'.

(2) BLACK CANYON WILDERNESS- Certain Federal land within the Lake Mead National Recreation Area and an adjacent portion of Federal land managed by the Bureau of Land Management, comprising approximately 17,220 acres, as generally depicted on the map entitled `Eldorado/Spirit Mountain', dated October 1, 2002, which shall be known as the `Black Canyon Wilderness'.

(3) BRIDGE CANYON WILDERNESS- Certain Federal land within the Lake Mead National Recreation Area, comprising approximately 7,761acres, as generally depicted on the map entitled `Eldorado/Spirit Mountain', dated October 1, 2002, which shall be known as the `Bridge Canyon Wilderness'.

(4) ELDORADO WILDERNESS- Certain Federal land within the Lake Mead National Recreation Area and an adjacent portion of Federal land managed by the Bureau of Land Management, comprising approximately 31,950 acres, as generally depicted on the map entitled `Eldorado/Spirit Mountain', dated October 1, 2002, which shall be known as the `Eldorado Wilderness'.

(5) IRETEBA PEAKS WILDERNESS- Certain Federal land within the Lake Mead National Recreation Area and an adjacent portion of Federal land managed by the Bureau of Land Management, comprising approximately 32,745 acres, as generally depicted on the map entitled `Eldorado/Spirit Mountain', dated October 1, 2002, which shall be known as the `Ireteba Peaks Wilderness'.

(6) JIMBILNAN WILDERNESS- Certain Federal land within the Lake Mead National Recreation Area, comprising approximately 18,879 acres, as generally depicted on the map entitled `Muddy Mountains', dated October 1, 2002, which shall be known as the `Jimbilnan Wilderness'.

(7) JUMBO SPRINGS WILDERNESS- Certain Federal land managed by the Bureau of Land Management, comprising approximately 4,631 acres, as generally depicted on the map entitled `Gold Butte', dated October 1, 2002, which shall be known as the `Jumbo Springs Wilderness'.

(8) LA MADRE MOUNTAIN WILDERNESS- Certain Federal land within the Toiyabe National Forest and an adjacent portion of Federal land managed by the Bureau of Land Management, comprising approximately 47,180 acres, as generally depicted on the map entitled `Spring Mountains', dated October 1, 2002, which shall be known as the `La Madre Mountain Wilderness'.

(9) LIME CANYON WILDERNESS- Certain Federal land managed by the Bureau of Land Management, comprising approximately 23,233 acres, as generally depicted on the map entitled `Gold Butte', dated October 1, 2002, which shall be known as the `Lime Canyon Wilderness'.

(10) MT. CHARLESTON WILDERNESS ADDITIONS- Certain Federal land within the Toiyabe National Forest and an adjacent portion of Federal land managed by the Bureau of Land Management, comprising approximately 13,598 acres, as generally depicted on the map entitled `Spring Mountains', dated October 1, 2002, which shall be included in the Mt. Charleston Wilderness.

(11) MUDDY MOUNTAINS WILDERNESS- Certain Federal land within the Lake Mead National Recreation Area and an adjacent portion of land managed by the Bureau of Land Management, comprising approximately 48,019 acres, as generally depicted on the map entitled `Muddy Mountains', dated October 1, 2002, which shall be known as the `Muddy Mountains Wilderness'.

(12) NELLIS WASH WILDERNESS- Certain Federal land within the Lake Mead National Recreation Area, comprising approximately 16,423 acres, as generally depicted on the map entitled `Eldorado/Spirit Mountain', dated October 1, 2002, which shall be known as the `Nellis Wash Wilderness'.

(13) NORTH MCCULLOUGH WILDERNESS- Certain Federal land managed by the Bureau of Land Management, comprising approximately 14,763 acres, as generally depicted on the map entitled `McCulloughs', dated October 1, 2002, which shall be known as the `North McCullough Wilderness'.

(14) PINTO VALLEY WILDERNESS- Certain Federal land within the Lake Mead National Recreation Area, comprising approximately 39,173 acres, as generally depicted on the map entitled `Muddy Mountains', dated October 1, 2002, which shall be known as the `Pinto Valley Wilderness'.

(15) RAINBOW MOUNTAIN WILDERNESS- Certain Federal land within the Toiyabe National Forest and an adjacent portion of Federal land managed by the Bureau of Land Management, comprising approximately 24,997 acres, as generally depicted on the map entitled `Spring Mountains', dated October 1, 2002, which shall be known as the `Rainbow Mountain Wilderness'.

(16) SOUTH MCCULLOUGH WILDERNESS- Certain Federal land managed by the Bureau of Land Management, comprising approximately 44,245 acres, as generally depicted on the map entitled `McCulloughs', dated October 1, 2002, which shall be known as the `South McCullough Wilderness'.

(17) SPIRIT MOUNTAIN WILDERNESS- Certain Federal land within the Lake Mead National Recreation Area and an adjacent portion of Federal land managed by the Bureau of Land Management, comprising approximately 33,518 acres, as generally depicted on the map entitled `Eldorado/Spirit Mountain', dated October 1, 2002, which shall be known as the `Spirit Mountain Wilderness'.

18) WEE THUMP JOSHUA TREE WILDERNESS- Certain Federal land managed by the Bureau of Land Management, comprising approximately 6,050 acres, as generally depicted on the map entitled `McCulloughs', dated October 1, 2002, which shall be known as the `Wee Thump Joshua Tree Wilderness'.

(b) BOUNDARY-

(1) LAKE OFFSET- The boundary of any portion of a wilderness area designated by subsection (a) that is bordered by Lake Mead, Lake Mohave, or the Colorado River shall be 300 feet inland from the high water line.

(2) ROAD OFFSET- The boundary of any portion of a wilderness area designated by subsection (a) that is bordered by a road shall be at least 100 feet from the edge of the road to allow public access.

(c) MAP AND LEGAL DESCRIPTION-

(1) IN GENERAL- As soon as practicable after the date of enactment of this Act, the Secretary shall file a map and legal description of each wilderness area designated by subsection (a) with the Committee on Resources of the House of Representatives and the Committee on Energy and Natural Resources of the Senate.

(2) EFFECT- Each map and legal description shall have the same force and effect as if included in this section, except that the Secretary may correct clerical and typographical errors in the map or legal description.

(3) AVAILABILITY- Each map and legal description shall be on file and available for public inspection in the appropriate offices of the Bureau of Land Management, National Park Service, or Forest Service, as applicable.

(d) WITHDRAWAL- Subject to valid existing rights, the wilderness areas designated in this section are withdrawn from--

(1) all forms of entry, appropriation, and disposal under the public land laws;

(2) location, entry, and patent under the mining laws; and

(3) operation of the mineral leasing, mineral materials, and geothermal leasing laws.

SEC. 203. ADMINISTRATION.

(a) MANAGEMENT- Subject to valid existing rights, each area designated as wilderness by this title shall be administered by the Secretary in accordance with the Wilderness Act (16 U.S.C. 1131 et seq.), except that--

(1) any reference in that Act to the effective date shall be considered to be a reference to the date of enactment of this Act; and

(2) any reference in that Act to the Secretary of Agriculture shall be considered to be a reference to the Secretary of the Interior with respect to lands administered by the Secretary of the Interior.

(b) LIVESTOCK- Within the wilderness areas designated under this title that are administered by the Bureau of Land Management, the grazing of livestock in areas in which grazing is established as of the date of enactment of this Act shall be allowed to continue, subject to such reasonable regulations, policies, and practices that the Secretary considers necessary, consistent with section 4(d)(4) of the Wilderness Act (16 U.S.C. 1133(d)(4)), including the guidelines set forth in Appendix A of House Report 101-405.

(c) INCORPORATION OF ACQUIRED LANDS AND INTERESTS- Any land or interest in land within the boundaries of an area designated as wilderness by this title that is acquired by the United States after the date of enactment of this Act shall be added to and administered as part of the wilderness area within which the acquired land or interest is located.

(d) WATER RIGHTS-

(1) FINDINGS- Congress finds that--

(A) the lands designated as Wilderness by this Act are within the Mojave Desert, are arid in nature, and include ephemeral streams;

(B) the hydrology of the lands designated as wilderness by this Act is locally characterized by complex flow patterns and alluvial fans with impermanent channels;

(C) the subsurface hydrogeology of the region is characterized by ground water subject to local and regional flow gradients and artesian aquifers;

(D) the lands designated as wilderness by this Act are generally not suitable for use or development of new water resource facilities and there are no actual or proposed water resource facilities and no opportunities for diversion, storage, or other uses of water occurring outside such lands that would adversely affect the wilderness or other values of such lands; and

(E) because of the unique nature and hydrology of these desert lands designated as wilderness by this Act and the existence of the Clark County Multi-Species Habitat Conservation Plan it is possible to provide for proper management and protection of the wilderness, perennial springs and other values of such lands in ways different from those used in other legislation.

(2) STATUTORY CONSTRUCTION-

(A) Nothing in this Act shall constitute or be construed to constitute either an express or implied reservation by the United States of any water or water rights with respect to the lands designated as Wilderness by this Act.

(B) Nothing in this Act shall affect any water rights in the State of Nevada existing on the date of the enactment of this Act, including any water rights held by the United States.

(C) Nothing in this subsection shall be construed as establishing a precedent with regard to any future wilderness designations.

(D) Nothing in this Act shall be construed as limiting, altering, modifying, or amending any of the interstate compacts or equitable apportionment decrees that apportion water among and between the State of Nevada and other States.

(E) Nothing in this subsection shall be construed as limiting, altering, modifying, or amending the Clark County Multi-Species Habitat Conservation Plan (MSHCP) with respect to the lands designated as Wilderness by this Act including the MSHCP's specific management actions for the conservation of perennial springs.

(3) NEVADA WATER LAW- The Secretary shall follow the procedural and substantive requirements of the law of the State of Nevada in order to obtain and hold any water rights not in existence on the date of enactment of this Act with respect to the wilderness areas designated by this Act.

(4) NEW PROJECTS-

(A) As used in this paragraph, the term `water resource' facility means irrigation and pumping facilities, reservoirs, water conservation works, aqueducts, canals, ditches, pipelines, wells, hydropower projects, and transmission and other ancillary facilities, and other water diversion, storage, and carriage structures. The term `water resource' facility does not include wildlife guzzlers.

(B) Except as otherwise provided in this Act, on and after the date of the enactment of this Act, neither the President nor any other officer, employee, or agent of the United States shall fund, assist, authorize, or issue a license or permit for the development of any new water resource facility within the wilderness areas designated by this Act.

SEC. 204. ADJACENT MANAGEMENT.

(a) IN GENERAL- Congress does not intend for the designation of wilderness in the State pursuant to this title to lead to the creation of protective perimeters or buffer zones around any such wilderness area.

(b) NONWILDERNESS ACTIVITIES- The fact that nonwilderness activities or uses can be seen or heard from areas within a wilderness designated under this title shall not preclude the conduct of those activities or uses outside the boundary of the wilderness area.

SEC. 205. MILITARY OVERFLIGHTS.

Nothing in this title restricts or precludes--

(1) low-level overflights of military aircraft over the areas designated as wilderness by this title, including military overflights that can be seen or heard within the wilderness areas;

(2) flight testing and evaluation; or

(3) the designation or creation of new units of special use airspace, or the establishment of military flight training routes, over the wilderness areas.

SEC. 206. NATIVE AMERICAN CULTURAL AND RELIGIOUS USES.

Nothing in this Act shall be construed to diminish the rights of any Indian Tribe. Nothing in this Act shall be construed to diminish tribal rights regarding access to Federal lands for tribal activities, including spiritual, cultural, and traditional food-gathering activities.

SEC. 207. RELEASE OF WILDERNESS STUDY AREAS.

(a) FINDING- Congress finds that, for the purposes of section 603 of the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1782), the public land in the County administered by the Bureau of Land Management and the Forest Service in the following areas have been adequately studied for wilderness designation:

(1) The Garrett Buttes Wilderness Study Area.

(2) The Quail Springs Wilderness Study Area.

(3) The Nellis A, B, C Wilderness Study Area.

(4) Any portion of the wilderness study areas--

(A) not designated as wilderness by section 202(a); and

(B) designated for release on--

(i) the map entitled `Muddy Mountains' and dated October 1, 2002;
(ii) the map entitled `Spring Mountains' and dated October 1, 2002;
(iii) the map entitled `Arrow Canyon' and dated October 1, 2002;
(iv) the map entitled `Gold Butte' and dated October 1, 2002;
(v) the map entitled `McCullough Mountains' and dated October 1, 2002;
(vi) the map entitled `El Dorado/Spirit Mountain' and dated October 1, 2002; or
(vii) the map entitled `Southern Nevada Public Land Management Act' and dated October 1, 2002.

(b) RELEASE- Except as provided in subsection (c), any public land described in subsection (a) that is not designated as wilderness by this title--

(1) is no longer subject to section 603(c) of the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1782(c)); and

(2) shall be managed in accordance with--

(A) land management plans adopted under section 202 of that Act (43 U.S.C. 1712);

(B) existing cooperative conservation agreements.

(c) RIGHT-OF-WAY GRANT- The Secretary shall issue to the State-regulated sponsor of the Centennial Project the right-of-way for the construction and maintenance of two 500-kilovolt electrical transmission lines. The construction shall occur within a 500-foot-wide corridor that is released from the Sunrise Mountains Instant Study Area in the County as depicted on the Southern Nevada Public Land Management Act map, dated October 1, 2002.

SEC. 208. WILDLIFE MANAGEMENT.

(a) IN GENERAL- In accordance with section 4(d)(7) of the Wilderness Act (16 U.S.C. 1133(d)(7)), nothing in this title affects or diminishes the jurisdiction of the State with respect to fish and wildlife management, including the regulation of hunting, fishing, and trapping, in the wilderness areas designated by this title.

(b) MANAGEMENT ACTIVITIES- In furtherance of the purposes and principles of the Wilderness Act, management activities to maintain or restore fish and wildlife populations and the habitats to support such populations may be carried out within wilderness areas designated by this title where consistent with relevant wilderness management plans, in accordance with appropriate policies such as those set forth in Appendix B of House Report 101-405, including the occasional and temporary use of motorized vehicles, if such use, as determined by the Secretary, would promote healthy, viable, and more naturally distributed wildlife populations that would enhance wilderness values and accomplish those purposes with the minimum impact necessary to reasonably accomplish the task.

(c) EXISTING ACTIVITIES- Consistent with section 4(d)(1) of the Wilderness Act (16 U.S.C. 1133(d)) and in accordance with appropriate policies such as those set forth in Appendix B of House Report 101-405, the State may continue to use aircraft, including helicopters, to survey, capture, transplant, monitor, and provide water for wildlife populations, including bighorn sheep, and feral stock, horses, and burros.

CLARK COUNTY CONSERVATION OF PUBLIC LAND AND NATURAL RESOURCES ACT OF 2002 (PUBLIC LAW 107-282-NOV. 6, 2002)

TITLE VI—SLOAN CANYON NATIONAL CONSERVATION AREA

SEC. 601. SHORT TITLE.

This title may be cited as the "Sloan Canyon National Conservation Area Act".

SEC. 602. PURPOSE.

The purpose of this title is to establish the Sloan Canyon National Conservation Area to conserve, protect, and enhance for the benefit and enjoyment of present and future generations the cultural, archaeological, natural, wilderness, scientific, geological, historical, biological, wildlife, educational, and scenic resources of the Conservation Area.

SEC. 603. DEFINITIONS.

In this title:

(1) CONSERVATION AREA.—The term "Conservation Area" means the Sloan Canyon National Conservation Area established by section 604(a).

(2) FEDERAL PARCEL.—The term "Federal parcel" means the parcel of Federal land consisting of approximately 500 acres that is identified as Tract A on the map entitled "Southern Nevada Public Land Management Act" and dated October 1, 2002.

(3) MANAGEMENT PLAN.—The term "management plan" means the management plan for the Conservation Area developed under section 605(b).

(4) MAP.—The term "map" means the map entitled "Southern Nevada Public Land Management Act" and dated October 1, 2002.

SEC. 604. ESTABLISHMENT.

(a) IN GENERAL.—For the purpose described in section 602, there is established in the State a conservation area to be known as the Sloan Canyon National Conservation Area.

(b) AREA INCLUDED.—The Conservation Area shall consist of approximately 48,438 acres of public land in the County, as generally depicted on the map.

(c) MAP AND LEGAL DESCRIPTION.—

(1) IN GENERAL.—As soon as practicable after the date of enactment of this Act, the Secretary shall submit to Congress a map and legal description of the Conservation Area.

(2) EFFECT.—The map and legal description shall have the same force and effect as if included in this section, except that the Secretary may correct minor errors in the map or legal description.

(3) PUBLIC AVAILABILITY.—A copy of the map and legal description shall be on file and available for public inspection in the appropriate office of the Bureau of Land Management.

SEC. 605. MANAGEMENT.

(a) IN GENERAL.—The Secretary, acting through the Director of the Bureau of Land Management, shall manage the Conservation Area—

(1) in a manner that conserves, protects, and enhances the resources of the Conservation Area; and

(2) in accordance with—

(A) the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 et seq.); and

(B) other applicable law, including this Act.

(b) MANAGEMENT PLAN.—

(1) IN GENERAL.—Not later than 3 years after the date of enactment of this Act, the Secretary, in consultation with the State, the city of Henderson, the County, and any other interested persons, shall develop a management plan for the Conservation Area.

(2) REQUIREMENTS.—The management plan shall—

(A) describe the appropriate uses and management of the Conservation Area;

(B)(i) authorize the use of motorized vehicles in the Conservation Area—

(I) for installing, repairing, maintaining, and reconstructing water development projects, including guzzlers, that would enhance the Conservation Area by promoting healthy, viable, and more naturally distributed wildlife populations; and

(II) subject to any limitations that are not more restrictive than the limitations on such uses authorized in wilderness areas under section 208; and

(ii) include or provide recommendations on ways of minimizing the visual impacts of such activities on the Conservation Area;

(C) include a plan for litter cleanup and public lands awareness campaign on public lands in and around the Conservation Area; and

(D) include a recommendation on the location for a right-of-way for a rural roadway to provide the city of Henderson with access to the Conservation Area, in accordance with the application numbered N–65874.

(c) USES.—The Secretary shall allow only such uses of the Conservation Area that the Secretary determines will further the purpose described in section 602.

(d) MOTORIZED VEHICLES.—Except as needed for administrative purposes or to respond to an emergency, the use of motorized vehicles in the Conservation Area shall be permitted only on roads and trails designated for the use of motorized vehicles by the management plan developed under subsection (b).

(e) WITHDRAWAL.—

(1) IN GENERAL.—Subject to valid existing rights, all public land in the Conservation Area is withdrawn from—

(A) all forms of entry and appropriation under the public land laws;

(B) location, entry, and patent under the mining laws; and

(C) operation of the mineral leasing, mineral materials, and geothermal leasing laws.

(2) ADDITIONAL LAND.—Notwithstanding any other provision of law, if the Secretary acquires mineral or other interests in a parcel of land within the Conservation Area after the date of enactment of this Act, the parcel is withdrawn from operation of the laws referred to in paragraph (1) on the date of acquisition of the land.

(f) HUNTING, FISHING, AND TRAPPING.—

(1) IN GENERAL.—Nothing in this title affects the jurisdiction of the State with respect to fish and wildlife, including hunting, fishing, and trapping in the Conservation Area.

(2) LIMITATIONS.—

(A) REGULATIONS.—The Secretary may designate by regulation areas in which, and establish periods during which, for reasons of public safety, administration, or compliance with applicable laws, no hunting, fishing, or trapping will be permitted in the Conservation Area.

(B) CONSULTATION.—Except in emergencies, the Secretary shall consult with the appropriate State agency before promulgating regulations under subparagraph (A) that close a portion of the Conservation Area to hunting, fishing, or trapping.

(g) NO BUFFER ZONES.—

(1) IN GENERAL.—The establishment of the Conservation Area shall not create an express or implied protective perimeter or buffer zone around the Conservation Area.
(2) PRIVATE LAND.—If the use of, or conduct of an activity on, private land that shares a boundary with the Conservation Area is consistent with applicable law, nothing in this title concerning the establishment of the Conservation Area shall prohibit or limit the use or conduct of the activity.

SEC. 606. SALE OF FEDERAL PARCEL.

(a) IN GENERAL.—Notwithstanding sections 202 and 203 of the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1712, 1713) and subject to valid existing rights, not later than 1 year after the date of enactment of this Act, the Secretary shall convey to the highest qualified bidder all right, title, and interest of the United States in and to the Federal parcel.

(b) DISPOSITION OF PROCEEDS.—Of the gross proceeds from the conveyance of land under subsection (a)—

(1) 5 percent shall be available to the State for use in the general education program of the State; and

(2) the remainder shall be deposited in the special account established under the Southern Nevada Public Lands Management Act of 1998 (Public Law 105–263; 112 Stat. 2345), to be available to the Secretary, without further appropriation for—

(A) the construction and operation of facilities to support the management of the Conservation Area;
(B) the construction and repair of trails and roads in the Conservation Area authorized under the management plan;
(C) research on and interpretation of the archaeological and geological resources of the Conservation Area;
(D) conservation and research relating to the Conservation Area; and
(E) any other purpose that the Secretary determines to be consistent with the purpose described in section 602.

SEC. 607. RIGHT-OF-WAY.

Not later than 180 days after the date of enactment of this Act, the Secretary shall convey to the City of Henderson the public right-of-way requested for public trail purposes under the application numbered N–76312 and the public right-of-way requested for public trail purposes under the application numbered N–65874.

APPENDIX B

Nevada Rangeland Health Standards and Guidelines

NEVADA'S RESOURCE ADVISORY COUNCIL RANGELAND HEALTH STANDARDS AND GUIDELINES

INTRODUCTION

The Department of Interior (DOI) established the Resource Advisory Councils (RAC) in 1995 as a forum for local citizens to provide advice and recommendations to DOI on management of the public lands. Each RAC comprises local residents who represent a variety of backgrounds but who share an interest in the public lands. Each RAC must include representatives of three broad categories:

- Commercial and commodity interests
- Environmental and historical groups (including Wild Horse and Burro and dispersed recreation)
- State and local government, Native American Indian Tribes, and the public at large.

STANDARDS AND GUIDELINES FOR NEVADA

The following Standards and Guidelines were developed by the Nevada RAC for the Bureau of Land Management (BLM), and approved on February 12, 1997, by the Secretary of the Interior. These Standards and Guidelines ensure that the BLM administration of grazing helps preserve currently healthy rangelands and restore healthy conditions to those areas that are not functioning properly. Standards and Guidelines provide specific measures of rangeland health and will identify acceptable or best management practices. The authority for these Standards and Guidelines is found in 43 *Code of Federal Regulations* (CFR) 4180.

Standard and Guidelines Implementation Process

Upon approval of the Standards and Guidelines by the Secretary of the Interior, permits and leases shall contain terms and conditions that ensure conformance with the approved Standards and Guidelines.

The implementation process for Standards and Guidelines will occur under two separate processes as described below:

1. During the supervision and/or monitoring of an allotment, if it is determined that the existing terms and conditions of a grazing permit are not in conformance with the approved Standards and Guidelines and that livestock grazing was determined to be a significant factor in the non-attainment of a standard, then as soon as possible, or no later than the start of the next grazing year, the terms and conditions of the permit/lease will be modified to ensure that the grazing management practices or the levels of the grazing use will be in conformance with the Standards and/or Guidelines.

   The modification of the terms and conditions of the permit/lease will be implemented by agreement and/or by decision.

2. The allotment evaluation process will continue to be the process used to determine if existing multiple uses for allotments are meeting or making progress towards meeting land use plan objectives, allotment specific objectives, Rangeland Program Summary objectives and land use plan decisions, in addition to the Standards and Guidelines for grazing administration.

Additionally, allotment specific objectives may have to be developed or amended, objectives in the land use plans further quantified at the allotment specific level, and terms and conditions of permits changed or revised to reflect the Standards and Guidelines. Allotment evaluations will continue to be completed based on district priorities.

a. The allotment evaluation consists of or involves:

1) The evaluation of current grazing use by all users (livestock, wild horses, wildlife) based on monitoring data analysis and interpretation;

2) Recommendations to change or adjust grazing systems;

3) Recommendations to change or adjust stocking levels; and

4) Establishment of stocking levels for wild horses.

b. The allotment evaluation also serves as the basis for either issuing multiple use decisions, agreements, or a no-change determination. Multiple use decisions are prepared subsequent to completion of land use plans and are based on the attainment or non-attainment of objectives established in the land use plans and allotment evaluations.

During the evaluation process, the existing terms and conditions of a permit will be evaluated to determine if they are in conformance with the approved Standards and Guidelines. If it is determined that the existing terms and conditions are not in conformance and that livestock grazing was a significant factor in the non-attainment, then as soon as possible or no later than the start of the next grazing year, the terms and conditions of the permit lease will be modified to ensure that the grazing management practices or the levels of grazing use will be in conformance.

At the conclusion of the evaluation process, the multiple use decision process will continue to be used to establish:

1) The terms and conditions of the grazing permits;

2) The appropriate management level for wild horses and burros that occur within the allotment; and

3) Any recommendations for wildlife populations or habitat management actions required if it is determined that these actions are necessary.

The preamble to the final regulations contains additional information regarding what action BLM would take upon becoming aware that a standard is not being met. The following preamble language is found on page 9956 of the *Federal Register* notice:

"The Department intends that failing to comply with a standard in an isolated area would not necessarily result in corrective action."

"The Department recognizes that it will sometimes be a long-term process to restore rangelands to proper functioning condition. The Department intends that Standards and Guidelines will result in a balance of sustainable development and multiple use along with progress towards attaining healthy, properly functioning rangelands. For that reason, wording has been adopted in the final rule that will require the authorized officer to take appropriate action upon determining that existing grazing management practices are failing to ensure appropriate progress toward the fulfillment of standards...."

"In some areas, it may take many years to achieve healthy rangelands, as evidenced by the fundamentals, established standards, and guidelines. The Department recognizes, that in some cases, trends may be hard to even document in the first year. The Department will use a variety of data, including monitoring records, assessments, and knowledge of the locale to assist in making the 'significant progress' determination."

The acceptance of progress toward reaching the desired end state is also addressed in the regulatory text in 43 CFR 4180.1, *Fundamentals of Rangeland Health*, which includes the "making significant progress toward" language in each of the four fundamentals.

The concept of "making progress toward" is a specific consideration when determining a course of action during implementation. Determining whether a standard is being met is a distinctly different concept from determining whether progress is being made toward or away from the standard. Determining a course of action is then dependent on a variety "Partners Against Weeds—An Action Plan for the BLM" (BLM 1996) factors, one of which is whether progress is being made toward the standard.

With regard to actions, it is the BLM's policy and intent to work in a collaborative manner to achieve or maintain the Standards necessary for healthy, productive rangelands. It is not the policy or intent of the BLM to arbitrarily and immediately remove all livestock from an entire allotment based solely on finding a range site that is not meeting a standard. As a practical matter, the BLM has neither policy, intent, desire nor capability to arbitrarily remove all livestock where acceptable progress is being made toward meeting the Standards.

Geographical Area Covered By the Standards and Guidelines

As shown below the three Resource Advisory Council areas in Nevada are based on combinations of major land resource areas as developed by the Natural Resource Conservation Service for Nevada. This land classification system is recognized by the Bureau of Land Management, the Forest Service and other agencies as a basis for ecosystem data collection and analysis. The soil, vegetal and geophysical characteristics of each of the three areas are different and the text offered by the three RACs incorporates their understanding of the differing physical and biological needs of the rangeland ecosystems.

Recognition of these differences is critical to the successful protection of rangelands in Nevada. As a result of basing the RAC boundaries according to an ecosystem approach as opposed to strictly an administrative or jurisdictional approach, the RAC's advice and recommendations are more relevant to the on-the-ground management of natural resources. The area covered by the Standards and Guidelines is as follows. Adjustments will be made for grazing allotments that overlap the boundaries between the RAC areas.

1. Mojave-Southern Great Basin Resource Advisory Council recommends actions to the Nevada BLM State Director for all or portions of Clark, Nye, Esmeralda, and Lincoln Counties including portions of the Ely, Las Vegas and Battle Mountain Districts. The Standards and Guidelines would apply to lands within the Southern Nevada Basin and Range and Sonoran Basin and Range major land resource areas as defined by the Natural Resource Conservation Service.

2. Sierra Front-Northwestern Great Basin Resource Advisory Council recommends actions to the Nevada BLM State Director for all or portions of Humbolt, Pershing, Washoe, Carson City, Douglas, Lyon, Mineral, Storey and Churchill Counties in Nevada and Lassen, Plumas, Sierra and Alpine Counties in California. This includes the Winnemucca and Carson City Districts. The Standards and Guidelines would apply to lands within the Sierra Nevada, Malhuer High Plateau, Humbolt Fallon-Lovelock and Carson Basin major land resource areas as defined by the Natural Resource Conservation Service.

3. The Northeastern Great Basin Resource Advisory Council recommends actions to the Nevada BLM State Director for all or portions of Elko, White Pine, Eureka, and Lander Counties. This includes all of the Elko District and portions of the Ely and Battle Mountain Districts. The Standards and Guidelines would apply to lands within the Owyhee High Plateau and Central Nevada Basin and Range major land resource areas as defined by the Natural Resource Conservation Service.

Mojave/Southern Great Basin Area

Preamble Grazing

The Standards and Guidelines for grazing administration on BLM lands in southern Nevada apply to livestock grazing. The Mojave-Southern Great Basin Resource Advisory Council (RAC) intends that the Standards and Guidelines will result in a balance of sustainable development and multiple use along with progress, over time, toward attaining desired rangeland conditions. Standards are expressions of physical and

biological conditions required for sustaining rangelands for multiple uses. Guidelines point to management actions related to livestock grazing for achieving the Standards. Guidelines are options that move rangeland conditions toward the multiple use Standards. Guidelines are based on science, best rangeland management practices, and public input. Guidelines indicate the types of grazing methods and practices for achieving the Standards for multiple use, are developed for functional watersheds and implemented at the allotment level.

The Mojave-Southern Great Basin RAC recognizes that it will sometimes be a long-term process to restore rangelands to proper functioning condition. In some areas, it may take many years to achieve healthy rangelands.

The Resource Advisory Council may be requested by any party to assist reaching agreement in resolving disputes.

Preamble Wild Horses And Burros

Nevada is an arid State. The Standards and Guidelines for rangeland health and the guidelines for Wild Horse and Burro (WH&B) management on BLM lands in southern Nevada apply to Herd Management Areas (HMAs). The Mojave-Southern Great Basin Resource Advisory Council (RAC) intends that the Standards and Guidelines will result in a balance of sustainable development and multiple use.

The standards for rangeland health will be reached and maintained by managing wild horse and burro numbers so as not to exceed Appropriate Management Levels (AML) for each Herd Management Area. Controlling wild horse and burro numbers through gathers and other control programs is essential.

Standards are expressions of physical and biological conditions required for sustaining rangelands for multiple uses. Guidelines point to management actions related to HMAs for achieving the Standards. Guidelines are options that move rangeland conditions toward the multiple use Standards.

Guidelines are based on science, best rangeland management practices, and public input. Guidelines indicate the types of management methods and practices for achieving the Standards for multiple use and are developed for functional watersheds and implemented within HMAs.

The Mojave-Southern Great Basin Resource Advisory Council recognizes that it will sometimes be a long-term process to achieve proper functioning condition(s) on degraded rangelands. Healthy rangelands contribute to healthy herds.

The Resource Advisory Council may be requested by any party to assist in addressing issues related to these Standards and Guidelines.

STANDARDS AND GUIDELINES

Standard 1. Soils:

Watershed soils and stream banks should have adequate stability to resist accelerated erosion, maintain soil productivity, and sustain the hydrologic cycle.

Soil indicators:

- Ground cover (vegetation, litter, rock, bare ground);
- Surfaces (e.g., biological crusts, pavement); and
- Compaction/infiltration.

Riparian soil indicators:

- Stream bank stability.

All of the above indicators are appropriate to the potential of the ecological site.

Guidelines: (For Soils)

1.1 Upland management practices should maintain or promote adequate vegetative ground cover to achieve the Standards. *(Apply to Wild Horse and Burro Guidelines also.)*

1.2 Riparian-wetland management practices should maintain or promote sufficient residual vegetation to maintain, improve, or restore functions such as stream flow energy dissipation, sediment capture, groundwater recharge, and streambank stability. *(Apply to Wild Horse and Burro Guidelines also.)*

1.3 When Wild Horse and Burro herd management practices alone are not likely to restore areas, land management practices may be designed and implemented where appropriate.

1.4 Wild Horse and burro herd management practices should address improvement beyond this standard, significant progress toward achieving standards, time necessary for recovery, and time necessary for predicting trends.

Standard 2. Ecosystem Components

Watersheds should possess the necessary ecological components to achieve State water quality criteria, maintain ecological processes, and sustain appropriate uses.

Riparian and wetlands vegetation should have structural and species diversity characteristic of the stage of stream channel succession in order to provide forage and cover, capture sediment, and capture, retain, and safely release water (watershed function).

Upland Indicators:

- Canopy and ground cover, including litter, live vegetation, biological crust, and rock appropriate to the potential of the ecological site.
- Ecological processes are adequate for the vegetative communities.

Riparian Indicators:

- Stream side riparian areas are functioning properly when adequate vegetation, large woody debris, or rock is present to dissipate stream energy associated with high water flows.
- Elements indicating proper functioning condition such as avoiding accelerating erosion, capturing sediment, and providing for groundwater recharge and release are determined by the following measurements as appropriate to the site characteristics:
- Width/Depth ratio;
- Channel roughness;
- Sinuosity of stream channel;
- Bank stability;
- Vegetative cover (amount, spacing, life form); and
- Other cover (large woody debris, rock).
- Natural springs, seeps, and marsh areas are functioning properly when adequate vegetation is present to facilitate water retention, filtering, and release as indicated by plant species and cover appropriate to the site characteristics.

Water Quality Indicators:

Chemical, physical and biological constituents do not exceed the State water quality Standards.

The above indicators shall be applied to the potential of the ecological site.

Guidelines: (For Ecosystem Components)

2.1 Management practices should maintain or promote appropriate stream channel morphology and structure consistent with the watershed. *(Apply to Wild Horse and Burro Guidelines also.)*

2.2 Watershed management practices should maintain, restore or enhance water quality and flow rate to support desired ecological conditions. *(Apply to Wild Horse and Burro Guidelines also.)*

2.3 Management practices should maintain or promote the physical and biological conditions necessary for achieving surface characteristics and desired natural plant community. *(Apply to Wild Horse and Burro Guidelines also.)*

2.4 Wild Horse and Burro management practices will consider both economic and physical environment and will address all multiple uses including, but not limited to, (i) recreation, (ii) minerals, (iii) cultural resources, (iv) wildlife, (v) domestic livestock, (vi) community economics, (vii) Areas of Critical Environmental Concern, (viii) designated wilderness (iv) and wilderness study areas (WSAs).

2.5 New facilities should be located away from riparian and wetland areas if existing facilities conflict with achieving or maintaining riparian and wetland functions. Existing facilities will be used in a way that does not conflict with achieving or maintaining riparian and wetland functions or they will be relocated or modified when necessary to mitigate adverse impacts on riparian and wetland functions.

2.6 Subject to all valid existing rights, the design of spring and seep developments shall include provisions to maintain or promote ecological functions and processes.

2.7 When proper Wild Horse and Burro herd management is not likely to restore areas of low infiltration or permeability, land management practices may be designed and implemented where appropriate. When setting herd management levels on ephemeral rangeland watersheds, reliable estimates of production for drought conditions should be used to avoid adverse effects on perennial species and ecosystems processes and retain a desired minimum level of annual growth or residue remaining.

2.8 Wild Horse and Burro herd management practices should address improvement beyond this standard, significant progress toward achieving standards, time necessary for recovery, and time necessary for predicting trends.

Standard 3. Habitat and Biota

Habitats and watersheds should sustain a level of biodiversity appropriate for the area and conducive to appropriate uses. Habitats of special status species should be able to sustain viable populations of those species.

Habitat Indicators:

- Vegetation composition (relative abundance of species);
- Vegetation structure (life forms, cover, height, and age classes);
- Vegetation distribution (patchiness, corridors);
- Vegetation productivity; and
- Vegetation nutritional value.

Wildlife Indicators:

- Escape terrain;
- Relative abundance;
- Composition;
- Distribution;
- Nutritional value; and
- Edge-patch snags.

The above Indicators shall be applied to the potential of the ecological site.

Guidelines: (For Habitat and Biota)

3.1 Mosaics of plant and animal communities that foster diverse and productive ecosystems should be maintained or achieved. *(Apply to Wild Horse and Burro Guidelines also.)*

3.2 Management practices should emphasize native species except when others would serve better for attaining desired communities. *(Apply to Wild Horse and Burro Guidelines also.)*

3.3 Wild Horse and burro herd management should provide for growth, reproduction, and seedling establishment of those plant species needed to reach long-term land use plan objectives. Measurements of ecological conditions, trend, and utilization will be in accordance with techniques identified in the *Nevada Rangeland Handbook*.

3.4 Wild Horse and Burro herd management practices should be planned and implemented to provide for integrated use by domestic livestock and wildlife.

3.5 Wild Horse and Burro herd management practices will promote the conservation, restoration and maintenance of habitat for special status species.

3.6 Wild Horse and Burro herd management practices will be designed to protect fragile ecosystems of limited distribution and size that support unique sensitive/endemic species or communities. Where these practices are not successful, herd levels will be reduced or eliminated from these areas.

3.7 Where Wild Horse and Burro herd management practices alone are not likely to restore areas, land management practices may be designed and implemented as appropriate.

3.8 Vegetation manipulation treatments may be implemented to improve native plant communities, consistent with appropriate land use plans, in areas where identified standards cannot be achieved through Wild Horse and Burro herd management practices alone. Fire is the preferred vegetation manipulation practice on areas historically adapted to fire; treatment of native vegetation with herbicides or through mechanical means will be used only when other management techniques are not effective.

3.9 Wild Horse and Burro herd management practices should address improvement beyond this standard, significant progress toward achieving standards, time necessary for recovery, and time necessary for predicting trends.

Standard 4: Wild Horses and Burros

Wild horses and burros within Herd Management Areas should be managed for herd viability and sustainability. Herd Management Areas should be managed to maintain a healthy ecological balance among wild horse and /or burro populations, wildlife, livestock, and vegetation.

Herd health indicators.

- **General horse and/or burro appearance:** Problems are often apparent and can be easily identified by just looking at the herd.
- **Crippled or injured horses and/or burros**: Excessive injuries can indicate problems.

Herd demographics indicators.

- **Size of bands:** A band with one stud or jack, one mare or jenny, and one foal indicates a problem. An oversized band also indicates there is a problem. Band sizes of 5-10 animals with one dominant stud per band is a good indicator.
- **Size of Bachelor Bands:** Large bachelor bands in the immediate vicinity of other bands could indicate potential problems.

Herd viability indicators.

- **Heavy trailing into water sources** may indicate a significant problem with forage availability or water distribution. Animals may be traveling considerable distances to obtain water or forage.

- **Waiting for water.** When available water becomes so scarce that a waiting line develops, horses and burros are in trouble.

- **Availability of water.** Address legal and/or climatic considerations. Situation exist where WH&B are present only because they currently have access to water which they could legally be deprived of under Nevada Water Laws. Situations exist where existing WH&B populations are dependent upon water hauling. If water hauling were to cease these animals would die within a matter of days.

- **Depleted forage near all available water sources.** Adequate water, and forage adjacent to water sources, are essential.

Guidelines: (For Wild Horse and Burro)

4.1 Wild Horse and Burro population levels in HMAs should not exceed AML.

4.2 AMLs should be set to reflect the carrying capacity of the land in dry conditions based upon the most limiting factor: living space, water or forage. Management levels will not conflict with achieving or maintaining standards for soils, ecological components, or diversity of habitat and biota.

4.3 Interaction with herds should be minimized. Intrusive gathers should remove sufficient numbers of animals to ensure a period between gathers that reflects national wild horse and burro management strategies. Non-intrusive gathers such as water trapping can be done on an "as needed" basis.

4.4 Herd Management Plans should be made with the best predictive information available. When emergency actions occur the Herd Management Plan should be re-evaluated.

4.5 Viable sex and age distribution should be a long-term goal of any Wild Horse and Burro Herd Management Plan. Sex and age distribution of the herd should be addressed when (after) AML has been reached.

4.6 When Wild Horse and Burro herd management alone is not likely to restore areas, land management practices may be designed and implemented where appropriate.

4.7 Wild Horse and Burro herd management practices should address improvement beyond this standard, significant progress toward achieving standards, time necessary for recovery, and time necessary for predicting trends.

APPENDIX C

Draft Recreation Monitoring Plan

DRAFT RECREATION MONITORING PLAN

The Draft Recreation Monitoring Plan contains the monitoring approach that will be used at the Sloan Canyon National Conservation Area (NCA) to ensure that management actions meet the recreation management goals and objectives described in the Draft Resource Management Plan/Environmental Impacts Statement (RMP/EIS). The monitoring is based on activities that could take place within the NCA. This Draft Recreation Monitoring Plan is organized by resource area, followed by resource goals, objectives and actions, and finally a description of the monitoring methods.

1.0 RESOURCE MONITORING

Monitoring is the process of collecting information to evaluate the effects of selected management actions, public actions and interests, and impacts in relation to the RMP goals and objectives and to ensure compliance with applicable law, regulations, and policy. Data describing changing trends over time are collected and used to determine if desired outcomes are being met.

Because the NCA and the North McCullough Wilderness Area were recently designated, the Bureau of Land Management Las Vegas Field Office has just begun to focus management attention on the area. Consequently, only limited resource and visitor use baseline data exist. In addition, visitor use is expected to change drastically as urban growth surrounds the NCA, trails and facilities are developed, and the NCA transitions into full operation.

This Draft Recreation Monitoring Plan is designed to be outcome based, technically feasible, affordable, and operationally attainable. Three types of monitoring will occur to determine the current status of the NCA baseline and to measure changes to it:

- **Baseline Monitoring.** What are the current baseline conditions?
- **Implementation Monitoring.** Were the decisions and actions developed during planning implemented?
- **Effectiveness Monitoring.** Did the implemented action result in changes to resource condition, visitor numbers, activity types, and duration of stay? Did changes in the indicators exceed thresholds established for achieving the objectives?

To monitor change within the NCA, BLM staff will identify and track indicators, which are specific elements of the NCA setting that change in response to human activities. Indicators provide quantitative documentation on how much conditions have changed, serve as tools for examining trends and highlight problems, and can act as an early warning to predict future conditions. When compared with standards that describe the acceptable limits of change, indicators can signal the need for corrective action, evaluate the effectiveness of management actions, and help determine if desired conditions are being achieved. To

accommodate the need for management flexibility as this development occurs, a baseline would be established and used to determine appropriate indicators and limits of acceptable change. The indicators will be monitored frequently as the NCA facilities are developed; as visitation and recreation opportunities stabilize, the monitoring will become more static.

2.0 RECREATION MONITORING

Two different aspects will be considered during recreation monitoring: the social setting and the physical setting. The number of people and the number and type of encounters that take place in defined settings characterize the social setting. The physical setting includes the physical landscape and environment, ranging from primitive areas, where the landscape is remote, pristine, and shows minimal evidence of human presence, to more developed areas that are manipulated to provide a desired setting and includes an abundance of facilities to accommodate heavy recreational use. The first objective and its associated goals and actions refer to the social setting, whereas the second objective refers to the physical setting.

Goal: Provide recreation opportunities within the NCA, including the North McCullough Wilderness Area, consistent with the Sloan Canyon NCA Act (Title VI of the Clark County Conservation of Public Land and Natural Resources Act of 2002), and Clark County Act, Title II ("Wilderness Area").

Objective 1

Provide an array of outdoor recreation opportunities and experiences within the NCA.

Management Actions Examples

Interpretive opportunities designed to enhance recreation experiences through information on the NCA's unique cultural and natural resources could be provided to visitors. Permits for overnight parking to support recreation activities would be available on a case-by-case basis.

A trail system could be developed to accommodate multiple trail uses in appropriate areas of the NCA. Trail development would be appropriately managed near wildlife water developments. Trail designs that avoid sensitive natural and cultural resource areas and special status plant communities would be emphasized. Site-specific resource conditions could be considered when selecting and designing trails and adding new trails, such as avoiding areas of sensitive wildlife habitat. Trails outside the North McCullough Wilderness Area would be evaluated for development as an Americans with Disabilities Act (ADA) of 1990. Additional trails could be added to the trail system when the new trail would not cause substantial impacts to sensitive cultural or natural resources and would improve visitor experiences. Unauthorized trails would be restored to natural conditions upon discovery.

Monitoring

The formal method of monitoring the social setting will be through visitor satisfaction surveys. These comprehensive surveys will include information regarding visitor demographics, preferred activities, recreation experiences and benefits, and setting preferences as well as evaluation of BLM management, facilities and services. Visitor surveys will be conducted for at least 1.5 year following the completion of the RMP to establish baseline data for the seasonal variation in visitation and regularly thereafter as development and visitation increases.

Monitoring will also be performed on an informal basis by BLM field personnel, volunteers, and through public participation. BLM field staff and volunteers will have training to gather data through visitor contacts and observation of social conditions. Comments from the public, in the form of letters, telephone calls, e-mails, public meetings, and feedback from special interest groups, or office visits will be collected and reviewed. When informal monitoring begins to indicate that the desired condition of the social setting is not being met, the next formal visitor survey should be implemented as soon as possible.

Objective 2

Manage recreation uses so that recreation related disturbances are minimized.

Management Action Examples

Special recreation permits (SRP) could be issued consistent with the purposes of the NCA and North McCullough Wilderness Area to control visitor use, protect recreational and natural resources, provide for the health and safety of visitors, and provide a fair return to the government for the opportunity to make a profit for the commercial recreational use of public lands. Competitive or vending SRPs could be issued within the NCA but not in the North McCullough Wilderness Area. Outfitters and guides wanting to guide hunts within the NCA would be required to obtain an SRP from the NCA manager to minimize potential conflicts among recreation uses. Outside the Sloan Canyon Petroglyph Site, organized groups would be required to obtain an SRP. Ongoing evaluations of the number, appropriateness, and impacts of commercial and competitive SRPs would be conducted, and limits could be placed on the issuance of commercial and competitive SRPs based on the evaluation and consistency with the purposes of the NCA. The NCA would be zoned into Management Emphasis Areas.

Hiking and equestrian use would be allowed on designated trails and in specified areas open to cross-country use. Users must stay on designated routes in trail use only areas. Mountain biking would be allowed on a system of designated trails and vehicle roads. No cross-country mountain biking would be allowed. Off-highway vehicle (OHV) use would only be allowed in designated areas and on designated routes.

Primitive and dispersed camping would not be allowed in the Sloan Canyon Petroglyph Site or north access, but it would be allowed in designated areas in other portions of the NCA. Campfires would be allowed at camping sites in fire pans or using fire blankets. All fire waste products must be packed out.

No forms of rock climbing would be allowed within the Sloan Canyon Petroglyph Site and its northern access, but bouldering and traditional rock climbing could be allowed outside designated sensitive resource areas in the remainder of the NCA. All forms of recreational target shooting, except permitted hunting, would be prohibited. Dogs could be allowed outside the Sloan Canyon Petroglyph Site and its northern access, and designated sensitive resource areas. Dog feces must be immediately picked up and packed out. Rockhounding could be allowed in the NCA with a use authorization. Geocaching would be prohibited. Certified weed-free hay and feed must be used within the NCA.

Monitoring

Indicators used for monitoring recreation will include visitor use, evidence of human and dog waste, vandalism, areas of impact, and SRP stipulations. Methods used for monitoring will include visitor surveys for numbers of encounters, trail counters, trailhead registers, ongoing management observations, recreation site and facility measurements, and permit evaluation and compliance. The frequency of monitoring will vary as development and visitation increase.

A team composed of appropriate BLM resource specialists will conduct formal monitoring for the physical setting. The resource specialists will determine the frequency of monitoring, but during the first phase, a comprehensive assessment will be conducted for at least 1.5 year following the completion of the RMP to establish baseline data for the seasonal variation in visitation.

Volunteers and BLM field personnel will conduct informal monitoring on a routine basis. Monitor will occur by performing a visual assessment during normal field operations and implementing a photo-monitoring program. If informal monitoring results in resource concerns, an appropriate resource specialist will be notified.

APPENDIX D

Cultural Resources Management Plan

The Sloan Canyon National Conservation Area Cultural Resources Management Plan

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INTRODUCTION

The cultural resources of Sloan Canyon National Conservation Area (NCA) were one of the primary reasons Congress established the NCA in 2002. This appendix provides three key elements for management of cultural resources during the first stage of implementation under all alternatives considered in the draft RMP. These are:

- a cultural context and relevant research questions for archeological and ethnographic work that may be conducted in the early stages of developing the NCA
- a treatment protocol to be implemented in the event that Native American human remains are discovered
- a monitoring plan to establish baseline data and track effects on cultural resources as public use of the NCA grows

The primary management of cultural resources for the NCA will be provided in the final record of decision for the RMP/EIS. These management guidelines are intended to provide more specific guidance than standard operating procedures, and as the general management plan for the NCA is implemented they are intended to change over time as knowledge is gained of the NCA, its resources, and its uses.

PART I: CULTURAL CONTEXT AND RESEARCH DESIGN

The relationship between cultural resources management and research significance has been defined at three interpretive levels (Hardesty 1995; Hardesty and Little 2000). The first and most basic level is the archaeological context. The archaeological context consists of the field observations of artifacts, features, and other physical remains in spatial relationships to each other and to the environment in which they are found. Contextual information of this type includes descriptions of provenience, associations, and physical matrix; site size and layout, relative abundance and diversity of physical remains, etc. The second level consists of the data required to address research questions derived from middle range theory that links archaeological context to past human activities (e.g., Binford 1980, 1983; Leone 1988; Schiffer 1987). Questions that can be addressed at this level include how sites are formed, how to distinguish different subsistence practices, past environments, population sizes, domestic architecture, and household form and activities. Middle range questions may also include questions of who made the artifacts (ethnicity), what are the artifacts, how were they made (technology), and when (chronology). The third level comprises the data required to address questions derived from general anthropological theory. Questions derived from general theory address issues such as the direction and pace of cultural evolution, historical materialism, and symbolism. The questions posed at this level are derived from theoretical paradigms that reflect the current understanding of the human past in a much broader perspective than an area the size of Sloan Canyon NCA, or even the southern Nevada region. Recent paradigms include such perspectives as cultural materialism, evolutionary ecology, world systems theory, structuralism, symbolism, Marxism, critical theory, and many others. The body of data that is relevant to questions posed under any particular paradigm can vary greatly, but tends to build on results of

previous studies. That is, data requirements tend to become more inclusive rather than less inclusive in terms of the kinds of data required to address new questions.

These three levels of significance provide a guide for evaluating the importance of the cultural resources of Sloan Canyon NCA. In a literal sense, all cultural properties are important for addressing questions that can be posed from at least one of the three interpretive levels. But the issue for management of cultural resources in any particular area is whether or not it has potential for containing *uninterpreted* information. The goal of determining which cultural resources have important information value is to record all cultural properties and preserve a sample of the variety of information adequate for future theoretical, interpretive, and cultural explanations.

Meeting the goal of preserving a sample of the kinds of cultural resources adequate for future research entails preserving a sample of site types containing each category of uninterpreted information. Development of the widespread use of a Geographical Information System (GIS) within the National Register process is one potential way of expediting the recognition of uninterpreted information and revealing data gaps. The other way of recognizing what information is important for future research needs is development of a research design. Data are important and, in many cases, exist only in the context of interpretive frameworks (theories and paradigms). Thus, a research design that links data to an interpretive framework will identify what cultural properties are important. However, what archaeological information is important also depends upon redundancy. That is, at some point the answer to a significant research question requires no additional information, or where each additional bit of information adds very little to the answer (Hardesty 1995). In the following discussion we have attempted to identify broad research questions that remain at the core of most archaeological research in southern Nevada and the kinds of archaeological information that could be found on Sloan Canyon NCA that are important to addressing those questions.

Sloan Canyon NCA is on the boundary of several cultural and environmental regions. The Mojave Desert, the Great Basin Desert, and the Sonoran Desert, each afford a different suite of resources that have contributed to different cultural developments and that respond differently to climate changes. Consequently, the boundaries of prehistoric cultural groups have often been drawn along the boundaries that define the three deserts (which correspond to the boundaries of the distributions of many plants and animals). The basic material culture inventory of the prehistoric peoples in all three deserts exhibits broad similarities, allowing for differences in the native toolstones and other materials available in each area. But for each named prehistoric culture, artifact types have been identified through which the presence of a particular cultural group can be inferred when those artifacts are found. Cultural boundaries have often been defined on the basis of material culture, which has been inferred to reflect adaptation to environment.

Sloan Canyon NCA has the potential to provide cultural resources relevant to addressing a broad spectrum of research questions phrased in terms of current research paradigms. The research questions defined below are divided into seven very broad categories following Duke et al. (2004) (with the addition of a historic research theme). While the questions posed below provide a guide for assessing the importance of cultural resources known and expected in Sloan Canyon NCA, given our current understanding of the prehistory and history of

North America in general, and Sloan Canyon NCA in particular, it must be recognized, as Hardesty has noted, "Research questions…change as new information and theories emerge. For these reasons, evaluating the information potential of archaeological properties requires tracking the dynamics of scientific and other scholarly research" (1995:7).

Archaeological studies in southern Nevada and surrounding regions have revealed the presence of people since at least the end of the Pleistocene and continuing into the present in a chronological sequence that currently has few, if any, temporal gaps when the region is viewed at a broad scale. The chronology and content of the archaeological record have been summarized and interpreted in numerous publications from a variety of theoretical paradigms appropriate for the time of their publication including, but by no means limited to, Grayson (1993), Lyneis (1982a, 1982b), Warren and Crabtree (1986), Schaafsma (1986), Madsen (1986), and Pippin (1995). A theme that is pervasive in the interpretation of prehistoric archaeological sites in the Great Basin, including the Mojave Desert and immediately adjacent parts of the Desert West, is the relationship between people and their physical environment. This theme has its origins in the early work of Julian Steward, particularly his seminal volume *Basin-Plateau Aboriginal Sociopolitical Groups* (1938). Steward (1929) also completed the first systematic study of Nevada's rock art, rejecting the idea that it was a form of "art for art's sake" and instead argued that it was the residue of culturally meaningful practices in the past. Steward's study was influential in shaping the terminology used to characterize abstract imagery, as well as identifying the important research theme of the balance between schematic and naturalistic imagery in rock art assemblages as a characteristic of stylistic variation.

Starting from interpretation of the distributions of cultural groups on the basis of their use of natural resources, many subsequent studies have focused on developing a more detailed and accurate understanding of prehistoric, ethnohistoric, and historic distributions of cultural groups through time and their relationships to natural resources, and causes of change in the lifeways of different groups at different times. Many of the sources of cultural change that have been identified in the many studies since Steward's initial study are environmental, particularly climatic change and associated changes in the plant and animal resources used by people. But other changes entailed the relationships between indigenous groups and their neighbors, either in the sense of diffusion of important technologies (i.e., horticulture) or incursions of people(s) from adjacent areas. Because these mechanisms (climate change, diffusion of technology or migration of people) have been interpreted as the primary causes of cultural change, the chronology of the region has largely been structured around these events. A very brief synthetic summary of the southern Nevada cultural chronology as it relates to the Sloan Canyon NCA is presented in Table 1. Also included in Table 1 are one or more of the broadest research questions for the time periods defined. For the most part the questions in Table 1 address the issues that were considered in distinguishing the time period from preceding and succeeding periods. These are questions posed at both middle and general levels of theory that will help define what kinds of data at the level of archaeological context are important and should be considered in evaluating the eligibility of sites for the National Register of Historic Places. More specific questions relating to Sloan Canyon NCA are posed in the following text.

Most of the archaeological record for southern Nevada is a record of Archaic hunter-gatherers. The Archaic Period was preceded by a poorly known Paleoarchaic, and possibly even a Paleoindian Period. The earliest inhabitants of southern Nevada may have arrived as early as the end of the Pleistocene (ca. 10,000 BP), but the few artifacts that suggest their presence are generally isolated surface finds that cannot be securely dated, and there is not yet enough data to determine much about their lifeway in terms of subsistence, land-use, or other cultural behaviors. The primary research questions for this period address whether there was a single population of people represented by each of the distinctive projectile point types (fluted points and the various large stemmed point types), or if the different point types represent task specific technologies; and whether people focused on lake-margin resources, large game, or were already relying on the generalized use of resources as they became available in the environment (Basgall and Hall 1991; Jones and Beck 1999). Evidence of this period is usually found in areas where water was present, especially along ancient shore-lines (Campbell and Campbell 1935) making it unsurprising that no evidence has yet been found in the Sloan Canyon NCA given the lack of such water sources in the area. However, this may be a sampling bias as sites identified to this period have been found along a wash near Yucca Mountain (Pippin et al. 1984). Any artifacts relating to the Paleoindian/Paleoarchaic Period found in Sloan Canyon NCA would provide important information regarding this early and controversial period in southern Nevada.

Table 1. Cultural Sequence and Context for southern Nevada focused on the area of Sloan Canyon NCA.

Period	Time Range (in years BP)	Environments	Identifying characteristics of assemblages	Some Important Research Issues
Historic	150—present	Mechanical rather than climatic changes in the environment caused by mining, transportation routes, introduction of domestic livestock, and larger settlements	Artifacts of Euro-American manufacture and land alteration associated with activities such as mining (adits, shafts, etc.), transportation (i.e., roads), etc.	What has the impact of various activities associated with Euro-American settlement been on the local environment and the people who lived there before?
Ethnographic		Essentially modern	Southern Paiute, Chemehuevi, Mohave	Issues related to Native American perspectives and world view. What do particular places and activities mean to different tribal groups?

Period	Time Range (in years BP)	Environments	Identifying characteristics of assemblages	Some Important Research Issues
Numic	700—present	Essentially modern	Arrow-sized projectile points of the Desert and Cottonwood series	Were the Numic immigrants from the west or local people? Did they displace the horticultural Puebloan peoples or simply remain after horticulture was no longer practical? What environmental perturbations affected horticulture?
Ceramic/ Saratoga Springs	1500—contact	Essentially modern	Arrow-sized projectile points of the Desert and Cottonwood series; ceramics of Paiute, Puebloan and Patayan styles; evidence of Puebloan influence in house structures	When and why did the various cultural/ethnic groups arrive in southern Nevada? How did the various cultural/ethnic groups identified by different ceramic styles differ in their land/resource use patterns? What was the nature of interactions between/among these groups?
Middle Archaic/ Gypsum	4000—1500	Return to less xeric conditions	More varied medium-sized dart points of the Elko, Gypsum, and Humboldt series; increase in millingstones, larger sites	Was there a shift in residential settlement to a greater focus on specific locations rather than short-term occupation of general areas as before? Is the increase in biface production and the occurrence of non-local toolstone a reflection of trade, relocation of villages, or logistical foraging?
Early Archaic/ Pinto	8000—4000	Environmental drying	Pinto-type points, millingstones, curation and reuse of tools	Does this period overlap with the preceding period indicating an *in situ* shift in land-use patterns in response to environmental drying that reduced the distribution and abundance of previously used resources requiring a shift to greater reliance on small seeds?
Paleoindian/ Paleoarchaic Lake Mojave	Prior to 8000	Late Pleistocene fauna, lacustrine and riverine features	Fluted points, large stemmed points, crescents, steep-sided unifaces or scrapers	Were people focused on lake-margin resources, large game, or already relying on generalized use of resources as they became available in the environment?

Until the last decades the Archaic period was characterized as very long period of time during which there was no cultural change (Jennings 1957), which led to many researchers recognizing *the* major question for this long time period to be "…are there large-scale directional trends and changes that characterize this period?"

(Lyneis 1982a:167). Cultural changes during the Archaic are generally characterized as responses to environmental change, and differences between areas are characterized as responses to environmental variability with flexible subsistence strategies regardless of whether the explanatory model in which interpretation is framed follows the lead of Steward's (1955) Cultural Ecology theoretical framework or the newer evolutionary ecology models (e.g., Bettinger and Baumhoff 1982). Flexible subsistence strategies also allow a population to accommodate short-term fluctuations in availability of plant and animal foods. More detailed knowledge of environmental conditions and the archaeological assemblages for time periods during which recognizable environmental conditions prevailed has allowed recognition of a tripartite cultural sequence for the Archaic Period in southern Nevada as shown in Table 1. The division is, however, a generalized pattern recognized over a broad area and may or may not be visible in localized areas such as Sloan Canyon NCA. Any archaeological resources that allowed recognition of fine-scale chronology within the Archaic Period would clearly qualify as important.

The Archaic Period essentially ends with the appearance of a number of material culture innovations, many or most of which originated in adjacent areas. Ceramic vessels of Puebloan and Patayan styles are the most common archaeological evidence the marks the end of the Archaic, but the appearance of ceramics is often accompanied by evidence of horticulture and changes in house structure. Sherds of ceramic vessels are commonly dated by reference to chronological sequences developed from sites in the Southwest. Artifacts that can clearly be affiliated with a cultural tradition from an adjacent region (i.e., the Southwestern ceramic traditions) provide important information regarding cultural interactions and chronology.

The arrival of peoples in the Great Basin speaking languages belonging to the Numic language family is thought by many to have occurred sometime around 700 BP (Warren and Crabtree 1986), though the exact timing is a matter of debate, as is what artifacts can be used to identify the Numic groups (Madsen and Rhode 1994). Numic groups are generally characterized as broad-spectrum foragers who used a greater range of resources that were more costly to collect and process than the larger game Archaic groups are thought to have relied on (Bettinger and Baumhoff 1982). Although various attempts to explain the relationships between Archaic, Numic, Puebloan, and Patayan groups have been proposed, the relationships between and among these peoples remain unclear. Consequently, any site with artifacts that can clearly be affiliated with one or more of these groups (again, potsherds are most frequently the artifacts by which the groups are recognized, but other artifacts may also be relevant) are important sources of information regarding population interactions and movements.

Class II and III inventories have already been conducted in the Sloan Canyon NCA (Duke et al. 2004; White 1998). The surveys provided a sample of the archaeological resources that occur in the NCA. Prior to conducting their archaeological inventory of the NCA, Duke et al. (2004) developed a research design that identifies six major categories of research issues that can be addressed with data from archaeological resources in the Sloan Canyon NCA. The six categories of research questions include: 1) chronology of human presence in the area; 2) land-use in marginal environments; 3) technological organization; 4) population interactions and replacements; 5) rock art; and 6) current Indian perspectives (Duke et al. 2004). We have also added a seventh: research issues for the historic period. The following research questions are

based on the findings and recommendations reported from the survey (Duke et al. 2004) and ethnographic studies conducted at the same time (Bengston 2004). However, because environmental change is generally seen as the triggering mechanism of cultural change in most theoretical models of culture change in the Desert West, evidence of environmental change is important to addressing literally all archaeological and ethnographic research questions. Thus, environmental studies, particularly those that address environmental change as well as distributions of resources, are included here as an underlying research category. Pollen, plant macrofossils from woodrat middens, faunal remains from woodrat middens, paleontological and archaeological sites, are critical sources of information that underlie most explanations of archaeological phenomena, and should be recognized as of high archaeological importance whether they are associated with cultural materials or not.

1. Chronology: how long have people been using Sloan Canyon and the North McCullough Range?

Determining the age of archaeological materials is a necessary first step in the interpretation of individual archaeological finds, synthesis, and regional interpretation. The currently available sites, assemblages, and artifacts from Sloan Canyon NCA for which age has been estimated indicate people have been using the area only during the late prehistoric and historic periods (Duke et al. 2004). However, the archaeological record elsewhere in southern Nevada has provided evidence that people were present as early as the end of the Pleistocene (approximately 10,000 years ago) and have been continuously present in varying numbers and habitats in the region for the entire Holocene (Grayson 1993; Pippin 1995).

Determining the chronology of use of any area in the Intermountain West is difficult due to the paucity of materials from which age of artifacts, and by association assemblages and sites, can be determined. The preferred material for dating is anything organic from which age can be estimated by radiocarbon analysis. Radiocarbon analysis is the preferred dating method because many of the issues with other dating methods are well known and have been addressed; most laboratories that do radiocarbon analyses have standardized ways of dealing with contamination, calibration, and other sources of error. Consequently, placing new archaeological materials into an existing regional sequence is relatively straightforward. Unfortunately, organic materials amenable to radiocarbon analysis are rare outside caves and rockshelters in most parts of the Intermountain West, including Sloan Canyon NCA. One of the most important issues that should be addressed in future archaeological studies in Sloan Canyon NCA is determination of whether the apparently short period of human presence is real or a result of taphonomic processes that have effectively hidden all earlier evidence. Because organic materials do not preserve well outside the protected environments of caves and rockshelters, it is important that all such locations that contain the potential for recovery of stratified artifact assemblages with associated organic materials be preserved for archaeological investigations.

Other methods of determining the age of archaeological materials are less precise and have sources of error that are not as well known and do not have standardized protocols for assessing errors and calibrating for their effects. These methods, however, have been used to determine the relative placement of the Sloan Canyon NCA archaeological record into the local and regional sequence. Methods that have yielded useful chronologies in southern Nevada include artifact typologies and obsidian hydration analyses.

Artifacts that have been classified into the most useful types for chronology building are projectile points and pottery, but even the presence of ground stone is often used to provide a gross estimate of the age of a site. Importantly, the typologies for both projectile points and pottery were developed in areas outside southern Nevada, in environmentally different settings where there is no reason to believe cultural development proceeded at the same pace or in the same directions as in Sloan Canyon NCA. The projectile point chronology was developed in the western Great Basin (Heizer and Hester 1978; Thomas 1981) where lakes and marshes were abundant throughout most of the Holocene, and contact with peoples on the west side of the Sierra Nevada clearly was common. A similar typology has been developed for the eastern Great Basin (Holmer 1986). Differences between the western and eastern projectile point chronologies attest to the necessity of developing a similar sequence for the southern Great Basin-Mojave Desert area. The pottery typologies were developed in the Southwest where both dry land and irrigated agriculture was possible and contact with peoples of Mesoamerica occurred. Because both the subsistence technology of a people and their contact with neighboring peoples can greatly affect the material culture inventory and its stylistic attributes, there is no reason to believe that the currently available dates for individual projectile point types or pottery styles are directly applicable to the archaeological record for Sloan Canyon NCA.

Obsidian hydration is a method of assessing the relative age of artifacts made of volcanic glass and has been investigated in various parts of the Intermountain West for a number of years, with varying degrees of success. It has been viewed as having great promise for archaeological studies because it could potentially be used on any piece of obsidian that was clearly broken by people; not only formed tools such as projectile points but debitage and assayed cobbles as well. However, numerous studies have shown that obsidians from different sources have different hydration rates, and that hydration rates of obsidian from the same source will vary depending on the immediate conditions of the environment in which it has lain since it was broken. Therefore, before obsidian hydration can provide a useful source of age determinations for the Sloan Canyon NCA artifacts, a local sequence for the common obsidians must be developed. Obsidian studies should be encouraged as a means of obtaining temporal data (via hydration analysis) that can provide age estimates of events in the NCA, and the movement of people (via XRF analysis), as in many parts of the Desert West chronologically sensitive materials are rare.

Prehistoric pottery offers another, extremely useful, source of chronological data for archaeological sites where materials amenable to radiocarbon analysis are not present. For the most part the chronological data comes from stylistic traits of the pots. However, in Sloan Canyon NCA the absence of residential sites makes it unclear whether pottery was being made locally or transported from some distance, which begs the issue of time-lag in estimating the age of sites based on typologies of ceramic styles developed from other areas. Knowing the source of the pottery's clay could provide essential data for tracking population movements and calibrating the age estimates based on stylistic sequences from other areas where pottery is abundant. Neutron activation analysis studies of the fabric of pottery sherds and clay sources in and around Sloan Canyon NCA should be encouraged to address the issue of where pottery was being made.

Developing and testing additional methods of assessing the age of archaeological materials found in desert environments is a topic that should receive attention in future archaeological research projects. Some

promising methods include optical luminescence of sediments containing archaeological materials, and growth ring analysis of desert shrubs found in deposits and growing on sites. Petroglyph dating is particularly challenging for rock art chronometric studies. The thematic research design described later in this Appendix for rock art reviews current methods most likely to apply to Sloan Canyon NCA and their data needs (Table 2).

2. Land-use: what kinds of activities brought people to Sloan Canyon and the North McCullough Range?

Most prehistoric peoples of the Intermountain West were mobile foragers. They moved seasonally to areas where the greatest abundance of food resources could be found. However, small groups would also travel significant distances to sources of materials necessary for making tools (lithic quarries), and possibly to sacred places as well. Sloan Canyon NCA contains a variety of different landscape types. Each affords a different suite of resources that could potentially have attracted prehistoric peoples. The archaeological survey already done has provided baseline information regarding use of the different landscape types.

Although the currently available survey data provide a reasonable assessment of prehistoric land-use in Sloan Canyon NCA for the last 1500 years, the archaeological potential of area has barely been tapped. Given the rugged formation of the North McCullough Range, the possibility that unrecorded caves and rockshelters exist is significant. Such sheltered sites could provide important data for both chronology building (see above) and for reconstructing past land-use patterns, particularly in regard to subsistence activities, procurement of tool materials, and sacred activities. Sheltered sites throughout the Great Basin have yielded cached tools (nets, fish hooks, grinding stones) and objects of inferred ceremonial significance (e.g., feather bundles) (Jennings 1957; Loud and Harrington 1929). Nearby Gypsum Cave (Harrington 1933) contained a number of arrow shafts that, while not as old as originally thought, provide evidence that prehistoric people were visiting the cave and using it as a place to store hunting equipment that they did not immediately need, but had prepared in anticipation of future needs. Sheltered sites in Sloan Canyon NCA could provide critical data for reconstructing past lifeways.

Sheltered and buried sites can also provide invaluable evidence of past land-use practices in the form of faunal and floral remains. Although these organic materials are seldom found during inventory, the potential for them is often noted in areas where there is the potential for deep deposits that can contain them. Excavation at sites that have potential for having deep deposits recorded during inventory (Duke et al. 2004) could also provide evidence of human presence prior to the well-documented 1500 years found on the surface.

Other evidence of land-use can be found in the simple distribution of particular kinds of sites in different habitat types. Although three of the types of sites in the Duke et al. (2004) typology, and isolated finds in general, are not considered eligible for listing on the National Register of Historic Places, the mere occurrence of archaeological materials is critical information for developing an understanding of land-use through time.

3. Technological organization: was technology oriented toward the logistical requirements of tightly scheduled, plant-focused subsistence activities?

Throughout the Great Basin, in fact throughout the Intermountain West, late-period sites are more abundant than earlier sites, and late-period assemblages reflect greater use of seasonal resources through the more common occurrence of ground stone implements (i.e., milling stones and handstones assumed to have been used to grind seasonally available seeds) and reduced frequencies of hunting related tools (i.e., projectile points, debitage, and other flaked stone tools assumed to have been used to hunt rabbits and artiodactyls). Important research questions that should be addressed in future archaeological projects in Sloan Canyon NCA regarding the use of different technologies are:

- whether the differences are temporal (i.e., more hunting tools in earlier sites, more grinding tools in later sites)
- whether different technologies are found in different, but contemporaneous, settings characterized by different edible resources (i.e., more hunting related tools in the McCullough Range where mountain sheep are more abundant, more milling stones in the canyon where there are more edible plant resources)
- whether different technologies are found in different, but contemporaneous settings characterized by different toolstone resources (i.e., more chipped stone hunting tools and debris near quarries where knappable stone could be obtained, more ground stone implements near sources of appropriate materials for grinding)

Three important, and closely related, issues must be addressed before the differences in technologies can be interpreted in terms of human behavior. First, because datable materials are rare in almost all sites, are sites with milling stones in the artifact assemblages being identified as late-period sites due to the presence of the milling stones? If so, the reasoning that milling is a late-period technology that replaces an earlier emphasis on hunting is circular. Sites hypothesized to be late because they contain ground stone implements must be independently dated using a method other than typological similarity to ground stone tools dated elsewhere to the late period. Radiocarbon analysis of plant materials floated from the matrix in which milling stones are found is one possibility for obtaining an independent date. Association with other typologically datable artifacts (i.e., potsherds, projectile points) is another (see previous research issue for more detailed discussion of dating issues).

Second, because early sites are rare, does the distribution of early sites reflect the manner in which people used the landscape, or is the known distribution of early sites biased by the likelihood of archaeological discovery or geological processes that have allowed sites to be relatively well preserved in some environments, poorly preserved in others, and completely erased in still others? Because late sites with milling technology tend to occur in depositional environments where sediments are deep enough to permit growth of plants that can be harvested for their seeds, and hunting sites are more likely to be dispersed in more rugged uplands where animals such as bighorn sheep are more likely to be found, hunting sites are more vulnerable to

dispersion by natural processes and are less likely to be recognized during a sample inventory. If they occurred in the intervening valleys and drainages they are likely to be buried by the sediments that accumulate in lower elevation settings.

Third, most datable sites found during inventory are late-period sites. It is reasonable to assume the resources available in the environment today are representative of those available to the prehistoric inhabitants of the area. However, recognizing that there may have been earlier use of the area, it is important to know the environmental changes that have occurred, especially those that affected important prey animals and plants that produce edible seeds, and which resources were being used most frequently at different times.

4. Population interactions and movements: can different ethnic groups be recognized in the archaeological record of Sloan Canyon NCA and the North McCullough Range?

The origin of Great Basin peoples has been a significant research issue for archaeologists since the early 1920s when it was first recognized that the New World had a long prehistoric period, and that prehistoric peoples differed from the ethnographically recorded peoples of North America. The relationships of Great Basin peoples with peoples from adjacent regions have also been important issues for archaeologists and ethnologists as culture areas began to be defined. Incursions of people from both the Southwest (Puebloan and Patayan) and from southern California (Numic) have been hypothesized for the late Holocene in the southern Great Basin. It commonly assumed that the horticultural people from the Southwest left when climatic conditions returned to more xeric conditions and dry land farming was no longer tenable, leaving the region once again to Numic peoples, descendants of whom remain in the region today.

The hypothesized population replacements and incursions lead to three interrelated issues for understanding the prehistory of Sloan Canyon NCA: 1) what archaeological evidence will allow recognition of the different groups, and do those kinds of evidence occur in Sloan Canyon NCA? 2) Did the population shifts really occur, or are artifacts generally associated with non-native cultures evidence of trade rather than population movements? 3) If the population replacements occurred, what gave one group of people a competitive advantage, or did two or more cultural groups coexist during times when there were population incursions from adjacent regions?

Data from the inventory provide generally accepted evidence that different cultural groups may, in fact, have been present in the Sloan Canyon NCA, although most of the archaeological record in the area is characteristic of much of the archaeological materials found throughout the Holocene in the Great Basin and during the Archaic Period in the Southwest. Three kinds of artifacts indicate extensive trade or population movements: pottery sherds (generally associated with Puebloan and Patayan cultures from the southwest, as well as the indigenous Southern Paiute brownware); obsidian (has been identified from widespread sources); and beads (made from *Olivella* shells that live in coastal water, but are found in Californian sites to the west, Hohokam sites to the east, and Great Basin sites to the north).

5. Rock art: who made the rock art in Sloan Canyon and elsewhere in the NCA, when and why?

Specific stylistic issues that relate to the ethnic identity of the prehistoric peoples who created rock art (particularly the emergence of Fremont and Puebloan cultural systems, and the dispersal of the Numic language family) have been discussed by Bettinger and Baumhoff (1982), Quinlan and Woody (2003), Schaafsma (1980, 1994), and Turner (1963).

Social functions and symbolism—The first systematic study of Nevada's rock art was Steward's (1929) analysis of the spatial distribution of rock art styles and themes in California, Nevada and Arizona. Steward (1929:225) rejected the idea that Nevada's rock art was a form of "art for art's sake" and argued that it was the residue of culturally meaningful practices in the past, although its precise meanings and functions were unclear. Steward's stylistic analysis was influential in shaping the terminology used to characterize schematic imagery, as well as identifying an important research theme—i.e., the balance between schematic and naturalistic imagery in rock art assemblages as a characteristic of stylistic variation. This stylistic classification was subsequently elaborated by Heizer and Baumhoff (1962), who added a temporal dimension, and has remained in broad use, despite some critique (e.g., Hedges 1982), minimally shaping researchers' general terminology and chronology. The relative balance between representational and abstract imagery is still used to define style types and has implications for understanding the social functions and interpretation of rock art (Bradley 2000; Layton 2000; Quinlan and Woody 2003).

The interpretation of rock art social functions and symbolism is characterized by divergent theories and opinions, in part because of the lack of direct ethnographic information relating to its production and uses (Quinlan 2000; Quinlan and Woody 2003). The rock art of Nevada has been interpreted from the general standpoint of hunting magic (Heizer and Baumhoff 1962), shamanistic (Whitley 1994), and landscape approaches (Woody 2000).

Rock art sites within the Sloan Canyon NCA may have considerable research potential to address questions of social structure, ritual, ethnicity and land-use in the Archaic, Puebloan and Fremont, and Prehistoric periods (Duke et al. 2004; Holmes et al. 2002:6; Lyneis 1982; White 2002:10). Themes, content, style and landscape context, all inform questions of site function and past meaning. Landscape context and portrayal of game animals can be used to determine whether Sloan Canyon's rock art is associated with hunting strategies, in the form of hunting magic (Heizer and Baumhoff 1962) and/or to educate young hunters about game animals (Matheny et al. 1997; Mithen 1988). Domestic archaeology and evidence of the daily routines of hunter-forager life occurring in association or close proximity to rock art sites could indicate that it was used in community-wide social practices (Quinlan and Woody 2003). As rock art interpretation has been skewed by the under-reporting of rock art's domestic associations, this spatial patterning at Sloan Canyon NCA offers an important corrective (Duke et al. 2004). Identifying prehistoric scratched art that defaces earlier rock art has been used to recognize the spread of Numic peoples through the Great Basin (Bettinger and Baumhoff 1982). Sometimes scratched art seems to embellish earlier art and may have been intended as a form of retouching (Woody 1997, 2000). Dating the advent of scratched art and its possible function as later retouching are important research themes rarely addressed in Great Basin rock art research because of the lack of data of sufficient quality. In addition, a qualitative and quantitative analysis of the themes and

styles of Sloan Canyon NCA rock art imagery could address the expression of prehistoric ethnicities because of the ways cultural identities are potentially expressed through graphic arts (Layton 2000:179-181). Such data would also be of value for making evaluations of significance of rock art panels and/or sites.

Dating rock art—Estimating the age of rock art is important for establishing a panel's entitlement to protection under ARPA and other statutes, and is an important research issue in its own right. Although it is sometimes claimed that only direct dating provides the kind of evidence accepted in court for age determinations, this is not necessarily the case. Nearly all scientific dating techniques applied to petroglyphs are experimental and likely to be challenged as such in court. However, traditional stylistic dating techniques, whilst providing relative dates and broad estimates of age have been accepted in court cases trying ARPA violations of rock art in Nevada (Woody 2005).

Scientific (or direct) dating techniques usually require intrusive extraction methods, even if only microscopic quantities are required for analysis (Table 2). Therefore, their application usually requires consultation with Native American tribes. These techniques are expensive and only pinpoint maximum and minimum dates for the rock art design tested, rather than the assemblage as whole. In contrast, relative dating techniques are non-intrusive and relatively cheap to perform (Table 2). They only produce broad age estimates and general sequences of development. They are simple to apply, often requiring only a keen sense of observation and the recording of visual levels of repatination using a Munsell rock color chart. They have the significant advantage of paying careful attention to the physical condition of rock art motifs, reporting data useful for making an assessment of potential site impacts.

Duke et al (2004:120) used relative dating techniques to suggest that the rock art sites within the Sloan Canyon NCA date from the Middle Archaic into the ethnohistoric past. Their assessment is based on the visual appearance of repatination, themes portrayed in rock art, and archaeological evidence dating the occurrence of other activities in Sloan Canyon NCA. A general temporal sequence is proposed based on the growing frequency of representational motifs with time (2004: Table 42). Further study and the inclusion of the rock art from the main Sloan Canyon Petroglyph site (26Ck2420/2621) in analysis has the potential to further refine this relative chronology.

Table 2. Rock Art Dating Methods and their Possible Relevance to Sloan Canyon NCA.

Method	Comments	Sources
	Direct Dating Methods	
1) Radiocarbon analysis of mineral accretions (and/or their inclusions) that cover rock art	Provides minimum and maximum ages and has been used to date organic inclusions in desert varnish; it may have potential at Sloan Canyon NCA	Bednarik (2001, 2002); Watchman (1996, 2000)
2) Lichenometry—a calibrated dating technique using lichen growth rates to estimate ages	Rarely used, is only precise up to 500 years, and only provides minimum and maximum age estimates	Bednarik (2001, 2002)

Method	Comments	Sources
3) Microerosion analysis—attempts to quantify weathering effects that can only be identified microscopically	Its use is restricted to erosion-resistant rocks, its accuracy is currently poor, and has rarely been used	Bednarik (2001, 2002)
4) AMS dating of organic materials contained in the residues of paint pigments	Its extraction techniques are intrusive and pictographs are rare at Sloan Canyon NCA	Chaffee et al. (1993); Watchman and Cole (1993); Watchman and Lessard (1993)
5) Cation-ratio dating—attempted to calibrate the leaching of soluble cations of rock varnish relative to the supposedly stable titanium content	This technique has now been abandoned by its inventor and never produced any accepted dates	Dorn (1983, 1996); Watchman (1992)
6) Cosmogenic radiation nuclides—determines maximum rock exposure ages by measuring the presence of cosmic ray-caused radiation products in rock	Does not actually date rock art, is poorly calibrated, and has produced unreliable results when applied to archaeology	Bednarik (1998)
7) X-Ray Fluorescence dating—an experimental method that measures the chemical thickness of desert varnish to produce an age estimate	Each site tested requires individual calibration. It is non-intrusive and is a practical way of testing all the designs at a site. Could be of potential for Sloan Canyon NCA	Lytle et al. (2004)

Method	Comments	Sources
	Relative Dating Techniques	
1) Iconographic dating—dates rock art by identifying dateable subjects in its imagery	Restricted to representational designs and is most useful for dating contact period and post-contact period imagery—one way of identifying graffiti	
2) Stylistic dating—observable differences in style are related to different times or cultural identities	Useful for broadly determining the age and general sequence of rock art assemblage, but stylistic differences are also functional and therefore can not be simply equated with ethnic identities or chronological periods	Layton (2001:315); Ucko (1987)
3) Technique—useful for identifying graffiti produced with modern tools and materials (e.g., spray paint, knives)	The limited range of techniques that exist to make rock art may have been in contemporaneous use and so can not be used to estimate the age of prehistoric art	Bednarik (2001, 2002)
4) Excavation—estimating the minimum age for rock art that is covered by datable deposits (either through exfoliation or sedimentation)	Provides a terminus ante quem for rock art that is covered or has exfoliated into the dateable deposit. No such cases have been reported for Sloan Canyon NCA	Cannon and Ricks (1986); Ricks and Cannon (1993)

Method	Comments	Sources
Relative Dating Techniques		
5) Proximity to other archaeological resources—provides potential evidence of rock art's continuing use even if it does not date the act of production itself	Relates rock art's use-life to other activities—it only provides the most general indications of rock art's age	Bradley (2000); Quinlan and Woody (2003)
6) Visual appearance of weathering and/or repatination—allows broad age estimates to be made—it is best used in combination with superimpositioning	This method could be used at Sloan Canyon NCA as superimpositioning and differences in levels of repatination are visually apparent	
7) Superimpositioning—discriminates older from more recent motifs, allowing a general sequence to be delineated	Works best when combined with a consideration of visual levels of weathering/repatination	Woody (1997)

Motif typology/key—To facilitate recording, evaluation and quantitative and qualitative statistical assessment of the rock art sites contained within the Sloan Canyon NCA, it is suggested that a motif typology or key is developed. The typology used by Duke et al. (2004) should serve as the basis of such a motif typology but with modifications and expansion as necessary (see also Nevada Rock Art Foundation 2003 [NRAF]). In constructing such a motif typology, interpretive labels should be avoided for all but the most readily identifiable subjects portrayed in a representational or naturalistic manner. This motif typology will enable rock art site types to be more securely defined and allow land managers to prioritize protective and conservation measures accordingly. Anthropomorphic and zoomorphic types should be subdivided into naturalistic and schematic types (allowing Basin and Range Tradition style simple stick figure types to be discriminated from elaborate Puebloan or Fremont-style types etc.).

Tortoise Cairns—(Duke et al 2004:107) reported the discovery of two human-made tortoise/turtle cairns located on a possible prehistoric trail on the rim of the canyon in Middle Canyon II. These are a unique feature, not represented elsewhere at Sloan Canyon NCA, or anywhere else in Nevada. Further research should attempt to elucidate the age of this unique feature. They were not observed in a previous survey that reported the trail they are located on as probably modern (White 1998) raising the possibility that they are a recent addition. Examination of previous survey photography or old tourist photographs may help resolve their age. If they are found to be modern it should be considered whether to dismantle these cairns to discourage copycat cairn construction and restore the site to its original condition.

6. Ethnographic cultural landscape

The ethnobotany, rock art, sacred lands, and lifeways of Native American people who used the area are not well documented. Some Native Americans believe the land, including that of the Sloan Canyon NCA, is alive. The Indians living near Sloan Canyon NCA have rituals, songs, and other activities that are associated with the land in general. A Chemehuevi elder commented, "It seems awkward to put these things in writing; however, it is important to document that the place has been visited and should be preserved." The collection of this information would greatly enhance the Bureau of Land Management's (BLM) ability to

focus on Native American interpretation of the NCA. It would also aid the BLM in continuing consultation with the tribes throughout the RMP/EIS process and in the ongoing management of resources within the NCA (Bengston 2004). Some potential areas that could be incorporated into an overall ethnographic cultural landscape study of the Sloan Canyon NCA include: ethnographic/ethnohistoric study of the North McCullough Range within the boundaries of the Sloan Canyon NCA, an ethnographic study of the Sloan Canyon Petroglyphs Site (26Ck2420/2621), focusing individually on the Southern Paiutes, Chemehuevis, Mojaves, Hopis, and Hualapais; and an ethnobotanical study of Sloan Canyon proper, focusing on the Southern Paiutes.

7. Research issues for the Historic Period

The historic period in the Great Basin is marked by a number of colorful and adventurous themes including trail blazing, mining, and railroad building. Associated industries included the introduction of domestic stock (particularly sheep and cattle) to support the other historic activities, and development of other businesses that grow up around mining, railroads and stock-raising communities. In Nevada, these businesses routinely included saloons, casinos, and brothels. Although there are numerous sites attesting to all of these activities nearby in southern Nevada, the only historic resources recorded during inventory (Duke et al. 2004) related to mining: numerous mining claim cairns and a small group of prospects, adits, shafts, habitation features, and road traces attributable to the Quo Vadis Mine which was in limited production in 1915, a placer mine at the south end of the central valley, an historic road, and a series of concrete dams built in 1942. No evidence of other historic activities was recorded. Future research should pay special attention to documenting other early historic activities in the area that could reflect other uses of the area by non-Indian peoples and the consequent interactions between Indian and non-Indian populations.

PART II: A TREATMENT PLAN FOR HUMAN REMAINS AND ITEMS OF CULTURAL PATRIMONY

Burials, associated funerary objects, sacred objects, and objects of cultural patrimony are often present in areas such as the Sloan Canyon NCA, and are of particular concern to local, living Indian peoples as well as being an important record of the presence of people in the area in the past. Their physical remains and any material culture associated with them provide evidence of many aspects of prehistoric lives. Burial places are broadly defined by the Department of the Interior Interagency Resources Division as "a location where the dead are prepared for burial or cremation, or where the remains of the dead are placed" without restriction on the size of the location or the complexity of the site, including the number of individuals interred or otherwise represented. Objects directly associated with burials, objects that at one time were associated with burials, sacred objects (items needed for the practice of traditional religion) and objects of cultural patrimony (objects that have ongoing historical, traditional, or cultural importance central to the Indian tribe itself, rather than to an individual tribal member) are included in the guidelines for treatment of human remains (Potter and Boland 1992:1-2).

Concern of Native Americans regarding the appropriate and respectful disposition of burial remains and objects has led to the passage of the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA, P.L. 101-601), which defines the rights of Indian Tribes and Native Hawaiian organizations regarding human remains, funerary and sacred objects, and other culturally significant objects for which they can demonstrate lineal descent or cultural affiliation. NAGPRA is intended to protect Native American graves and their related items and to control their removal. It encourages avoidance of archaeological sites that contain burials and makes Federal agencies responsible for consulting the appropriate tribes when such sites are encountered during planned excavations or inadvertently.

Although legislation exists, particularly in NAGPRA, regarding the protection and disposition of burials and objects associated with them, detailed guidance on identifying, evaluating, and documenting archaeological sites that contain burials and appropriate methods for studying them have not been issued. Burial places are recognized as reflections of cultural values and practices that contain important information about past people. Objective evaluation is not always possible because burials are often viewed with reverence and sentiment by families and cultural groups descended from the interred individuals. Consequently, special requirements are included in the evaluation of cemeteries and graves. Burials are not considered eligible for the National Register of Historic Places unless they meet special requirements. The specialized nature of investigation of burials, ongoing debates over the appropriate treatment of burial sites, and evolving policies and procedures relating to NAGPRA have all contributed to the lack of standardized guidance.

The complexity of the issue of treatment of human remains and items of cultural patrimony is vividly expressed in the statement of the Society for American Archaeology (1999) concerning the treatment of human remains. The SAA board adopted a formal statement regarding the treatment of human remains in May 1986 and reaffirmed it in March 1999. The SAA, like the DOI, opposes a Federal legislation that imposes a uniform standard for determining the disposition of all human remains due to the diversity of

beliefs and interests in burial customs. The SAA acknowledges an ethical responsibility to advocate and aid in the conservation of archaeological data, recognizing that mortuary evidence is an integral part of the archaeological record that informs directly upon social structure and organization, and upon aspects of religion and ideology. They further recognize that human remains provide unique information about demography, diet, disease, and genetic relationships among human groups. In the statement it is argued that "research in archaeology, bioarchaeology, biological anthropology, and medicine depends upon responsible scholars having collections of human remains available both for replicative research and research that addresses new questions or employs new analytical techniques." However, the SAA also recognizes the diversity of cultural and religious beliefs regarding the treatment of human remains and that there are legitimate concerns about the treatment and disposition of human remains that conflict with legitimate scientific interests, and that those concerns must be recognized and respected. As with the DOI guidance for consultation with tribes, the SAA encourages close and effective communication between researchers and those communities that may have biological or cultural affinities to human remains. Conflicting claims concerning proper treatment and disposition of particular human remains must be resolved on a case-by-case basis through consideration of the scientific importance of the material, the cultural and religious values of the interested individuals or groups, and the strength of their relationship to the remains in question.

The following guidelines have been developed for the treatment of human remains found in the Sloan Canyon NCA by integrating the principles expressed in the NAGPRA regulations, concerns expressed by Indians, the values expressed in the SAA regulations, and guidelines for protection developed by the Bureau of Land Management.

Human skeletal materials, associated funerary objects, sacred objects, and objects of cultural patrimony must at all times be treated with dignity and respect. Regardless of whether they are left *in situ* or removed for protection, study, and reburial. Burials, including associated objects, sacred objects, and objects of cultural patrimony found in the Sloan Canyon NCA will be treated with utmost dignity and respect.

Commercial exploitation of human remains is abhorrent. Further, unauthorized removal of any archaeological materials on the Sloan Canyon NCA, including human burials and the matrix in which they are contained is illegal. Unauthorized individuals caught disturbing human burials on the Sloan Canyon NCA will be prosecuted to the fullest extent of the law. Further, any evidence of unauthorized tampering with human burials will be pursued with due diligence to apprehend and prosecute individuals who disturb burials, their associated objects, sacred objects that were placed in the NCA as part of a ceremony or for storage, or any object of cultural patrimony. This includes, but is not restricted to, human burials, rock art, cairns, objects cached in rockshelters, and objects buried in the ground.

All human remains and associated funerary objects, sacred objects, and objects of cultural patrimony found on the Sloan Canyon NCA should receive appropriate scientific study. This stipulation can be accommodated with minimal conflict with tribal concerns if handled in a timely, respectful, and conservative manner. Context description, inventory and metric description, and graphic documentation are the minimal

data that must be collected for all human remains, associated objects. More advanced analyses such as radiocarbon dating, DNA and isotopic analyses must be negotiated on a case-by-case basis.

1. Discovery Situations

In the event that human remains or associated cultural materials are found inadvertently during construction of trails, guzzlers, or other authorized activities, the party responsible for the discovery will cease the activity in the area of the discovery and make a reasonable effort to protect the items discovered. They will immediately notify the Sloan Canyon NCA manager and BLM law enforcement by phone (or in person) and in writing, of the discovery. BLM law enforcement will notify appropriate local law enforcement agencies and coroner to ensure that the discovery is not a crime scene. Upon determination that the site is not a crime scene, the authorized officer will consider the feasibility of redesigning the activity to avoid the discovered items and preserve them *in situ*. Whenever possible, human remains exposed on the Sloan Canyon NCA will be carefully and immediately covered in the exact location and with the sediments in which they were found until final disposition is determined.

Human remains or items of cultural patrimony found exposed by erosion, activities of animals such as coyotes or bighorn sheep, or during archaeological research, will be immediately and carefully protected from further exposure by the individual(s) making the discovery. The individual(s) making the discovery will follow the notification process above. After release of the site by the coroner or appropriate law enforcement agency, if erosion or disturbance by animals cannot be curtailed in a reasonable manner, it may be necessary to remove the burial to prevent further exposure, disturbance and destruction.

Human remains that cannot be avoided and left *in situ* due to other land-use activities, or that cannot be protected from exposure by erosion, activities of animals, or other natural disturbances, must be carefully excavated and kept in as intact condition as possible given their present condition of preservation, until they are either reburied or curated.

2. Authorized Archaeological Excavations

All archaeological excavations will include a treatment plan for human remains and associated materials specifically designed for the project as part of the Archaeological Resources Protection Act (ARPA) permit application. Interested tribes will be offered the opportunity to review and comment on the plan as part of the ARPA permit process.

3. Disposition of NAGPRA Materials

If human remains are recovered rather than preserved *in situ*, efforts will be made to determine the tribal affiliation of the interred individual and the remains and associated objects will be given to the living descendants after appropriate, scientific documentation of the burial and its associated objects. All discoveries of NAGPRA materials will be subject to the current affiliation/repatriation process at the time of discovery. The validity given any claim by an individual or group regarding any particular human remains will

depend on the strength of their demonstrated biological or cultural affinity with the remains in question. If the remains can be identified as those of a known individual with biological descendants, the living descendants will be responsible for appropriate permanent disposition of the remains. They may choose to rebury, cremate, curate, or otherwise dispose of the remains. However, if human remains are recovered from the Sloan Canyon NCA and repatriated to living descendants or an affiliated tribe, reburial cannot occur within the boundaries of the Sloan NCA. Vandalism and looting threaten the archaeological record, including burial sites, which necessitates cooperation between archaeologists, descendants, land managers, and others that may have an interest in the past (stewards, etc.). The Bureau of Land Management cannot legally provide protection for any interment outside authorized curation facilities; once they have been removed from the ground they no longer qualify as archaeological sites and are not covered under existing federal laws and regulations.

Once removed from their original burial place, human remains that cannot be clearly associated with a particular tribe and appropriately reburied according to tribal custom will not be reburied in a generic manner. Unaffiliated human remains will be curated in an appropriate and respectful manner by the Nevada State Museum, Carson City, Nevada. Such materials will be made available for observation and study only to qualified individuals who will continue to maintain a dignified and respectful treatment of the remains. Curated human remains will be accessible only for legitimate scientific or educational purposes; they will not be put on public display.

PART III: A MONITORING PROGRAM FOR SHORT- AND LONG-TERM EFFECTS BY OTHER USES WITHIN THE SLOAN CANYON NCA

1. Implement a site monitoring/stewardship program

Southern Nevada's rock art and archaeology are at acute risk from the rapid urban growth of Las Vegas and increased leisure use of its hinterland. Damage is frequently manifested in the form of vandalism (defacement and graffiti), theft of portable rock art boulders (Holmes et al. 2002:9), and unauthorized excavation. Sloan Canyon NCA contains numerous rock art sites and other archaeological sites that are at risk from unsupervised public visitation. Rock art sites are particularly fragile cultural resources at risk from both environmental and human causes of deterioration, while buried archaeological deposits are at risk from unauthorized excavation or destruction caused by trampling. The monitoring program outlined below is applicable to all archaeological features present in the Sloan Canyon NCA; measures that are specialized to particular site types are indicated.

Site monitors inspect sites for changes in physical condition and identify whether observed changes are the result of natural factors or human intervention. Natural sources of deterioration include;

- erosion caused by wind, rain, water runoff etc.
- abrasion from plants
- deposition of minerals over rock art panels (the inclusions in these mineral skins can potentially be dated by direct dating methods)
- exfoliation of rock surfaces from freeze/thaw cycles, water and salt action
- surface retreat that is in the nature of the rock
- animal activity (animals walking over rock art may scratch it with their hooves or claws; burrowing rodents may expose buried archaeological deposits etc.) (Loendorf et al. 1998:73-74)

Anthropogenic causes of site deterioration are both unintentional and deliberate. Unintentional impacts that are the result of site overuse, unsupervised visitation or lack of visitor knowledge can include;

- abrasive dust thrown up by visitors (Gale and Jacobs 1987)
- erosion caused by visitors repeatedly following the same trails
- over-visitation resulting in changes to the natural environment of a site (Brunet and Vidal 1989)
- repeated touching of rock art with hands, resulting in staining, soiling, and wear
- walking over rock art panels or archaeological deposits
- air pollution
- ATV users driving over archaeological sites and rock art (Holmes et al. 2002:9)
- deposition of trash
- introducing foreign materials in rock art (chalk, charcoal etc.) to enhance photography
- making rubbings or latex molds of rock art panels (Loendorf et al. 1998:74)

- rock climbing over rock art panels (Holmes et al. 2002:9)

Deliberate acts of site deterioration can include;

- graffiti (either directly over, in association or near rock art) that visually mars a site
- defacement of rock art (deliberate attempts to obliterate it)
- use of rock art as target practice
- theft of portable rock art boulders (and also attempts to remove larger boulders by using a rock saw to cut out the motif)
- unauthorized excavation (Loendorf et al. 1998:74)

Site monitoring or stewardship programs are potentially an effective form of proactive site management that can manage these environmental and anthropogenic threats to site integrity. Because monitoring programs rely on public volunteers, agencies are faced with the problem of administering volunteers and avocational groups for whom few sanctions exist to correct inappropriate behaviors. Volunteers work on their own schedule and do as much or as little as they wish. Site monitors should be regularly monitored by agency staff as stewardship programs provide the perfect cover for looters and a place for looters to obtain information about sites not publicly known. It is for this reason that monitors should never discuss the site(s) they monitor (even to other monitors) and should never give directions to sites.

Effective site monitoring programs require frequent site inspections that are visible to site visitors, staffed by well-trained and enthusiastic volunteers, and adequately supervised by agency staff to make best use of the monitoring information that is thus derived.

Training—Site monitors should be trained in appropriate procedures and relevant background knowledge. They should learn about existing legal protection for archaeological sites (ARPA etc.) and the requirements for successful prosecution of violations. This will help them understand the reasons for what they are doing and the duties expected of them. Site monitors should be instructed in the methods required for carefully reporting changes in the condition of the site(s) they monitor. Monitors should be able to recognize new impacts (environmental or human) at sites (based on a preexisting thorough record of the site), record new impacts using photography and a sketch drawing. Site monitors need to have impressed on them that in no circumstances should they ever attempt to mitigate any vandalism they may observe. Monitors are trained in safety issues—they should never inspect sites on their own and never approach individuals they observe committing a crime at a site. Instead, they should record the actions observed and report them immediately to agency staff.

Monitoring practices—In general it is not desirable for a steward to monitor more than one site, unless they are in such close proximity that it makes sense to do so. Site monitors are expected to inspect their site once every three months—sites at high risk or which are highly visible should be monitored more frequently, particularly at weekends and other periods of peak activity. This can be achieved by either increasing the frequency of inspections individual monitors make, or by recruiting more site monitors for a particular site.

Monitors inspect their site for any sign of human visitation (vandalism, graffiti, looters' pits, trash etc.) or natural erosion, and use a preexisting record of the site's condition on which to base their assessments. If they find evidence of visitation they should proceed cautiously—if the site was visited in the pursuit of an illegal activity then the site steward's presence and actions can potentially contaminate a crime scene.

Changes to the physical condition of the site are carefully recorded by photography (including a photo-board that records site number, date time, etc.), sketch drawings and a detailed written description. A generalized site impact form could be devised to serve this purpose and distributed to monitors. If the change in site condition is the result of illegal activity monitors should not touch anything and retrace their steps before calling law enforcement or agency staff who will record the condition impact in detail. This is why stewards should always carefully inspect a site for signs of disturbance before clearing up modern trash. Any vandalism or graffiti should be carefully recorded in photographs, sketch drawings and sketch maps, and should only be mitigated by a trained conservator under the direction of agency staff.

Monitors are supervised by a site stewardship coordinator (also a volunteer) who is responsible for either a single site or a small area containing many sites. The coordinator provides monitors with the equipment necessary for them to carry out their tasks—a camera (disposable is acceptable), a photo-board, measuring tapes, drawing materials, notebooks and any necessary agency forms). These materials can be stored in a box that is taken into the field by monitors and returned to the coordinator at the end of the site inspection. Monitors must check-out and check-in with the coordinator before making their inspection and upon their return. The coordinator schedules the inspection rotation, assigns sites to monitors, collects receipts for reimbursement from monitors, and reports directly to the agency staff overseeing site monitoring.

In addition, the BLM will consider the feasibility of remote site monitoring through the use of concealed video cameras. This should be considered for areas of highest archaeological sensitivity and where landscape context contributes an air of seclusion that often makes perpetrators feel that they can be undetected.

All Sloan Canyon NCA site stewards will work under the direction of the NCA archeologist, and under a formal BLM volunteer agreement which sets standards, rules, and requirements.

Administration and training providers—The Nevada Archaeological Association (NAA) is the umbrella organization for archaeology site stewardship programs throughout Nevada. It provides training to volunteer monitors and membership of the NAA is not a condition of participation in its scheme. The NRAF provides training and site monitoring schemes that concentrate on the protection of rock art sites. Its monitoring program is open only to its members—volunteers have to join the NRAF before they can receive training or participate in a stewardship program. Both the NAA and NRAF liaise with the Clark County Heritage Resources Coordinator (a Southern Nevada Public Land Management Act [1998] funded position) who is responsible for overseeing site stewardship programs in Clark County.

2. Conservation guidelines

It is suggested that conservation of rock art sites should involve consultation with a professional rock art conservator. The very specialized knowledge and experience of rock art conservators allows them to: a) understand the structures and properties of a work; b) apply scientific knowledge to the conservation treatment; and c) perform procedures that minimize the loss of cultural material (Odegaard 1999). Conservation procedures adopted are carefully tailored to the needs of individual sites—one solution does not fit all sites or even all panels at the same site (Dandridge and Kane 1999:29). A suggested conservation and mitigating process (once a conservator's services have been obtained) that could be followed is;

- carry out a condition assessment of the site
- conservator advises on the possible risks of proposed treatment measures
- consult with Native Americans regarding their concerns about the proposed treatment
- document the area to be cleaned before treatment
- fully document the treatment used
- always use the least aggressive treatment first before other options are explored
- fully document the condition of the area after the treatment is finished (this allows comparison of the finished condition of the area with its condition prior to treatment)
- monitor the condition of the area on a regular basis after treatment is completed (this allows problems caused by treatment to be identified quickly and before they cause further damage. If mitigating graffiti or other vandalism it is important to monitor the site regularly in case vandals try to restore their vandalism) (Loendorf et al. 1998:75)

Graffiti is usually removed or mitigated because it is seen as encouraging future acts of vandalism by "communicating that such acts are condoned" (Griswold 1999:42; Howard and Silver 1999:36). The pressure on conservators to remove graffiti is strong because the longer an applied material remains on the surface and exposed to the elements, the harder it is to remove (Dean 1999:22). However, the consequences of well-intentioned but un-informed efforts to remove graffiti are potentially as damaging as the original vandalism it is intended to mitigate (Dean 1999:23).

Visual reintegration of graffiti should only be attempted by a trained professional under the direction of agency staff. Additive (e.g., spray paint) and subtractive (e.g., scratching) graffiti pose different problems of mitigation and require different solutions (Griswold 1999:41). Scratched graffiti can be treated by reducing the contrast between the light colored graffiti and the surrounding surfaces. However, it is virtually impossible to completely eliminate scratched or incised letters or shapes by in-painting them as "they will always be picked out by the careful eye on close inspection, no matter how well the paint matches the original surface" (Griswold 1999:45). Some conservators believe that camouflaging or reversing graffiti by in-painting should only be used as a last resort because at best it only minimizes the appearance of graffiti and at worst gives graffiti "a venerable looking patina of "age"" (Griswold 1999:45).

It is suggested that removing or mitigating graffiti or other defacement that directly covers rock art should only be attempted by a professional conservator under the direction of BLM agency staff (Loendorf et al. 1998:76).

3. Public education

Native American interpretation of cultural and natural resources should be included in public interpretation programs and media, in addition to archaeological interpretation of Sloan Canyon's archaeological features. A Native American perspective could include interpretations of the rock art, archaeology, plant resources and other features of interest at Sloan Canyon NCA. Native American interest in such a program was expressed during the ethnographic assessment (Bengston 2004). Continuing consultation with Native American tribes would be one way of achieving this indigenous participation in interpretive programs and the BLM has already hired an American Indian Coordinator/Lead Environmental Education Specialist to assist in this effort.

Public education could be attempted to preempt deliberate or unintentional damage to cultural properties. The most commonly applied public education tool is the strategic placement of signs. Signage is not endorsed at remote or inconspicuous sites as their reduced visibility offers them a measure of protection that would be reduced by the erection of signage (Jameson and Kodack 1991:238). Erecting signs will highlight fragile cultural resources and increase their visibility to potential vandals and/thieves. While signage is not reported to usually result in an increase in on-site vandalism, the sign itself often becomes the focus of vandalism (Jameson and Kodack 1991:240). Signage should be monitored regularly and replaced for damage as necessary.

Signage can be erected in the Sloan Canyon NCA to correct inappropriate visitor behaviors and would not conflict with its status as an NCA or Wilderness Area. Sloan Canyon NCA is already well-known and the levels of site visitation are expected to increase—signs, if erected, would not be making more visible a currently inconspicuous cultural resource. It is a routine BLM practice to erect signs that identify federal lands and their accompanying archaeological sites as a law enforcement measure (Jameson and Kodack 1991:241-242). The absence of signage can make ARPA violations difficult to prosecute—also, protection statues U.S.C. 641 (theft of government property) and 18 U.S.C. 1361 (destruction of government property) are easier to enforce when a site is signed (Jameson and Kodack 1991:243).

Messages on signs are most effective when they describe the importance of the cultural resource, why it is fragile and irreplaceable, provide information of legal penalties, and end with an upbeat message (Jameson and Kodack 1991:243).

Visitor centers can serve as the locus for public education and need to be placed effectively so that they promote and interpret sites which are protected from visitors, and through which they must pass before experiencing the cultural resources. A visitor center could be used to monitor visitor numbers by housing a register. Interpretive kiosks could be placed at each entrance to the NCA. These should advise visitors on

correct site etiquette, describe the laws and enforcement measures that protect the cultural resources they will encounter, and outline their cultural value to Native Americans and archaeological interpretation. They could also contain a visitor register.

Site tours are a common educational technique that can successfully manage public curiosity about archaeological sites in a manner where their behavior can be closely monitored. It is also a way of distracting public attention away from vulnerable sites or those that have little or no monitoring in place to protect them. Public tours need to be carefully managed because they can result in overcrowding at sites, leading to increased erosion of trails and abrasive dust being blown onto the rock art panels (Gale and Jacobs 1987:231-232). The size and frequency of public tours, if implemented, should be monitored for their impact on trails and archaeological sites, and modified accordingly if related increased erosion and/or deliberate damage are observed.

Protective measures that obstruct photography should be avoided where possible to remove a possible cause of public dissatisfaction that could lead to them being ignored or challenged by certain users " who will take the opportunity to vandalize or destroy features meant to protect a site" (White 2002:34). Educational devices such as signage and trail guides should be first tried to keep visitors to the trail. If monitoring of land-use reveals that this is ineffective then low barriers could be erected to control visitor circulation patterns.

4. Implement a full archaeological documentation of the rock art sites

Thorough documentation provides the basis for all conservation and protection measures and is considered an important state goal in the *Nevada Historic Preservation Plan* (Baldrica 1995). Duke et al. (2004:148) recommend that a detailed documentation of the rock art panels should be done as time and monies allow. This would provide baseline data for management decisions, monitoring programs and enhance the prospects of successful prosecution of ARPA violations. The rock art sites at Sloan Canyon NCA are already suffering the negative consequences of site visitation in the form of graffiti and attempted theft (Duke et al. 2004:51, 145).

White (2002) outlines a three-tiered approach to rock art documentation, where each level is increasingly more intensive and detailed than the last. A Class I documentation consists of completing an IMACS form for each identified site. The most basic components of the site are defined (e.g., features, cultural materials and rock art panels) and a precise UTM and township and range location are taken. A site plan showing the location of major features or concentrations is made. Class II documentation includes the completion of IMACS forms as well as the supplemental IMACS form for each identified rock art panel. Photographs, either 35mm or digital, are taken and site maps showing the location of individual panels are made. Field sketches of each panel should also be completed during this phase. Class III documentation consists of the preceding methods in addition to measured scale drawings of each rock art panel and a precise site plan of the position of rock art panels and their relationship to each other (White 2002:24). White also recommends that a thorough site characterization be completed for each site that includes minimally the following elements;

- site description including landscape context
- description of the rock art (type, themes, suggested age and style and production techniques)
- assessment of the site's condition (including signs of vandalism, unauthorized excavation, presence of trash, natural causes of erosion etc.)
- determine immediate and potential threats to site integrity
- provide management recommendations for the protection, education, interpretation and appropriate uses of the site (White 2002:24-25).

The current level of documentation for the rock art at Sloan Canyon is at the level of a Class II survey because scaled field drawings have not been completed for all panels. These are a valuable management tool, particularly when dealing with hard-to-see panels, and they clearly indicate and interpret present and potential threats to image integrity (e.g., spalling, water runoff etc.). For a photographic record to meet existing Nevada SHPO archival standards minimally a black and white negative is required of each panel. In addition, all photographs should include a photo-board recording important contextual information (see Photo-documentation section below) so they can be used to manage ARPA violations. Photography made during the random and non-random surveys is at a Class I or II level because of the absence of a photo-board and/or color calibration scale and North arrow. It may not be desirable to consolidate the data from previous surveys when making scale drawings to achieve a Class III survey of the rock art sites in the Sloan Canyon NCA. It is frequently difficult and time-consuming to re-identify panels in the field from photographs and some new photography is necessary to bring the photo-documentation to a Class III standard. Consolidation of existing survey data requires harmonization of panel numbering systems (and panels that are renumbered would need to be re-photographed with their new panel numbers). A Class III survey could also take into account the research themes identified in this Appendix and the techniques and data required to address them.

Recording guidelines are outlined in some detail as few published rock art recording protocols exist—most documentation manuals take the form of "gray" literature and are hard to acquire. It is also useful if volunteers are to be used to explain to them some of the rationale underlying non-intrusive methods and why accuracy is important.

Recording methods—Because some rock art recording techniques currently practiced by rock art researchers are intrusive and/or inaccurate, a suggested recording procedure that is in accordance with the International Federation of Rock Art Organizations (IFRAO) standards is outlined below. Most argument regards the best method for making scale field drawings for which there are three main approaches, summarized below. These are assessed in the light of the IFRAO guidelines for accurate, non-destructive recording techniques (Bednarik 2001). Recording work should be directed by an archaeologist holding a BLM or Nevada State Antiquities permit.

Scale drawings. (a) Drawing from color slides—slides taken in the field are projected onto a wall to be copied onto paper or plastic sheeting. This technique is technically not a field drawing as it essentially is only the tracing of a photograph. Drawings made in this manner are then checked and corrected in the field. This

technique is non-intrusive but is inaccurate and time-intensive because re-identifying panels in the field from drawings based on photographs can be a lengthy process, particularly as the scale drawings are drawn to variable scales (the scale is dependent on the position of the photographer when the picture was taken and the size at which the slide was projected onto a wall for the drawing to be made). If the image being recorded is not situated on a flat surface (very common) then the drawing will introduce inevitable distortions caused by tracing an image on an irregular surface from a flat photograph (this is also a problem for direct tracing). Also, when a site contains panels with similar motifs the chances of correcting a drawing against the wrong panel are quite high. All drawing techniques are interpretive and it is therefore always preferable to make scale drawings from the original in the field and not from a secondary medium such as a photograph. The inaccuracy and time-consuming nature of this recording technique make it inappropriate and not recommended.

(b) Direct tracing (as opposed to raised tracing where there is no direct contact between plastic and rock art) is still widely used in some parts of the world, and is used by some recorders in the US (e.g., Lever 2004; Loendorf et al. 1998). This technique involves placing a sheet of Mylar, acetate or other sheet of clear film, over the rock art to be recorded and directly tracing onto the plastic the shape of the motif underneath. It is potentially very time-consuming and results in a 1:1 scale drawing (both significant drawbacks) (Loendorf et al. 1998:61, 63). As this technique involves placing pressure on rock art imagery it is intrusive and potentially damaging, as well as inaccurate (Bednarik 2000; Kolber 2004:2; O'Connor 1999). Rock art researchers advise against any kind of contact with rock art panels ('look, don't touch') as oils from hands touching rock art can be drawn into the rock and contaminate any future dating techniques. Therefore, direct tracing's intrusive nature and inaccuracy recommend against its use in any circumstances. Indirect tracing (i.e., using a frame to support the plastic sheeting) is non-intrusive but shares the same inaccuracies as direct tracing; it is also very time-consuming and therefore not recommended because a faster and more accurate technique is available (see below).

(c) The least intrusive and most accurate technique for making scale drawings currently practiced involves the use of string grids (Kolber 2004; Loendorf et al. 1998; NRAF 2003). Drawings are made in the field and can be corrected at the same time. A string grid (usually 1 x 1 m in size comprising 10 x 10 cm squares) is laid over the panel to be drawn. This means that the scale used (1:10) is consistent for each drawing—an important consideration for land managers when using drawings to subsequently re-identify panels in the field. The recorder strives to objectively copy on paper only what can be seen on the rock art panel. Any vandalism, graffiti, the removal of (or any attempt at removing) a motif are also recorded, as well as signs of exfoliation etc (NRAF 2003). Drawings include a North arrow, record the rock type, a Munsell color chart reading, the dimensions of the panel and any other applicable comments. If it is not possible to place a string grid over the panel to be drawn (for e.g., the panel may not be accessible) the absence of a scale should be clearly noted on the drawing. No artistic ability is required to make a scale drawing—it is the misperception that artistic ability is necessary that has probably been responsible for the popularity of tracing methods (either from a photograph or directly from the image). This technique is the recommended method for making scale drawings at Sloan Canyon.

Photo-documentation. Photographic techniques should be non-intrusive and non-destructive. Adding foreign materials (e.g., charcoal, chalk, paint etc.) to enhance the visibility of petroglyphs for photography was once a common practice—such practices are now recognized as destructive but some continue to be used. Loendorf et al. (1998:4) report that chalking, at least until 1988, was an approved documentation technique in Colorado and was stipulated on the state's Historic Preservation Office's rock art recording supplemental form. As accurate, non-intrusive photographic techniques exist there is no need for such destructive practices to be employed. However, land managers need to be aware of their existence as some rock art researchers do use destructive techniques despite the damage they cause.

All photographs should contain a photo-board in the picture (otherwise their value is the same as a tourist photograph) (Loendorf et al. 1998; NRAF 2003). Photo-boards provide contextual information that is essential for providing documentation of a site's condition necessary to enable prosecution of ARPA violations and monitor the effects of natural erosion. Information on the photo-board must include: Site Number & Name (if any); Panel Number; Date; North Arrow and IFRAO Color Calibration Scale. Although "white boards and erasable markers" seem convenient, with time and in the hot sun it becomes more and more difficult to erase the marker fully. The black menu board with push-style white plastic letters (more commonly used as open/closed signs for shops) is a good medium for photo boards and is the most clearly visible in photographs (NRAF 2003).

Photographs should be taken of each individual panel and overall panel photographs to show the relationships of panels to each other (Loendorf et al. 1998:38). A photographic log should be kept and should record information such as roll number, exposure number, panel number, etc. The photographic record should minimally include black & white prints (proof sheets are generally made) of every panel—black & white print negatives remain the archival standard of both the Library of Congress and the Department of the Interior (Historic Register) due to their longevity (NRAF 2003). Color slides, color prints and color digital photographs should also be taken—these will be of most use to land managers. Cameras used should always be 35mm SLR and the digital camera should be SLR of least 5 Megapixel resolution. Kodak TMX 100 is an acceptable choice of black and white film. Color slides are of unproven archival quality—Kodak Kodachrome slide film is of good archival quality but Ektachrome can also be used (Loendorf et al. 1998:44). Color prints have a shorter archival life than color slide film and because of the expense of developing they can probably be omitted in favor of digital prints. Digital photographs should be taken in archival TIFF or RAW format—it should be borne in mind that if digital photography is proved in the future to be of greater archival quality than black and white photography, it may become the new archival standard. Also, as digital technologies and techniques improve, slides may become less important, but currently they cannot be replaced (NRAF 2003).

Mapping. All panel locations and associated archaeological features should be plotted using a hand-held GPS device capable of sub-meter accuracy. (Graffiti and defacement should also be plotted to allow the identification of any new graffiti or vandalism). This will provide both UTM coordinates and allow internal site mapping (i.e., showing the relationships of panel locations to each other) (NRAF 2003). This is another

valuable tool facilitating re-identification of panels in the field, and provides information necessary to prosecute theft.

5. Evaluation criteria

After identification and documentation rock art sites must be evaluated for significance. Not all sites or rock art panels are significant and criteria of evaluation of the heritage value of rock art panels/sites will allow the identification of those panels of sufficient significance to receive more protective measures than those of lesser significance. This also provides a management tool for estimating the scale of damage caused by any future vandalism or natural erosion. Rock art is usually nominated as eligible for inclusion on the NRHP under criteria C and D (White 2002:29). Duke et al. (2004:140) note that rock art is commonly highly esteemed by Native American groups and could be additionally considered Traditional Cultural Properties in accordance with Bulletin 38 guidelines (White [2002] makes a similar point). White (2002:26-27) lists a number of the properties of rock art sites/panels that should be taken into consideration when assessing their eligibility for inclusion to the NRHP;

1) Aesthetic value—topographic setting and landscape setting may have played an important role in past selection of sites for making rock art (White 2002:26).

2) Historic value—rock art sites may record important events or the actions of important people. They may also contribute to a people's continuing sense of place and history (Stoffle et al. 2000; White 2002:26).

3) Scientific value—rock art sites/panel may have scientific value because of their potential to address research themes regarding chronology (because of the potential for direct dating or relative dating studies), past social practices, past ethnic and cultural identities, and past population movements (White 2002:26-27).

4) Sociocultural value—rock art sites/panels potentially have social and cultural value to Native Americans because they are perceived as inherently sacred or have a continuing religious use for traditional ceremonial practices. This sacred quality should be recognized and respected by all users of rock art sites. Also, rock art sites/panels may be of importance because of their role in manifesting indigenous cultural history in the landscape and their educational role in teaching Native Americans about their cultural heritage (White 2002:27-28). In these cases rock art could be treated as traditional cultural properties (Duke et al. 2004; White 2002:28).

In addition to these general principles of evaluation the following more specific criteria should be applied to rock art sites and individual panels to assess their significance and the level of protective measures applied. Table 3 allows the varying significance of sites and individual panels to be assessed based on a quantitative and qualitative consideration of their content and current condition. Sites or panels that have already suffered degradation have reduced significance. A site or panel's evaluation is not permanent—significance may be restored through conservation work and it may be lost or diminished by future degradation (natural or human-caused). It is suggested that management of Sloan Canyon NCA's rock art sites should attempt to

protect a representative sample of its character and features, and protect sites and/or panels that express motif types or styles that are regionally rare and/or not well-represented in the NCA, and/or are unique to the NCA. The development of a motif typology (suggested above) would facilitate the evaluation process.

A consideration of site visibility may assist in prioritizing the intensity of monitoring and/or the nature of protective measures to be applied to sites evaluated as significant. A site or panel's proximity to well-used trails, or a prominent position in the local topography, makes it highly visible to visitors. The nature of certain sites makes them highly visible even if they do not occupy striking landscape positions, in particular sites with large numbers of motifs present. A site's landscape visibility can be heightened by the actions of the general public, in particular the posting to the internet of maps of sensitive archaeological areas.

Table 3. Typology of the Significance of Rock Art Sites and Panels.

Class	Size[a] Motif#	Panel#	Condition[b]	Characteristics	Significance[c]
Ia	1	1	Very Poor to Good	Single prehistoric panel or motif in a well-defined and/or well-known regional or local style. The style and motif type is well represented at other sites in Sloan Canyon NCA	1
Ib	1	1	Normal to Good	A complex single prehistoric panel or motif that covers at least 5 m sq in area and/or comprises over 20 elements;‡ its scale and complexity make it potentially significant even if it is in a well-defined and/or well-known regional or local style. Not well represented at other sites in Sloan Canyon NCA.	3
Ic	1	1	Very Poor to Subnormal		2
Id	1	1	Very Poor to Good	A complex single prehistoric panel or motif that covers at least 5 m sq in area and/or comprises over 20 elements;‡ its scale and complexity make it potentially significant even if it is in a well-defined and/or well-known regional or local style—well represented at other sites in Sloan Canyon NCA	2
IIa	2-10	2-6	Very Poor to Good	Prehistoric panels or motifs in well-defined and well-understood regional and/or local styles which are well represented at other sites in Sloan Canyon NCA	2
IIb	2-10	2-6	Very Poor to Subnormal	Includes some prehistoric motifs that are of a distinctive and/or unusual localized style and/or are not well represented at other sites in Sloan Canyon NCA	2
IIc	2-10	2-6	Normal to Good		3
IIIa	11-50	≥7	Normal to Good	Prehistoric motifs that are representative are of well-defined and well-understood regional and/or local styles that are well represented in the Sloan Canyon NCA. The larger size of the assemblage makes it unusual for the local region	3
IIIb	11-50	≥7	Very Poor to Subnormal		2
IIIc	11-50	≥7	Subnormal to Good	Includes some prehistoric motifs that are either of a distinctive and unusual localized style, or are not well represented at other sites in Sloan Canyon NCA. The larger size of the assemblage makes it unusual for the local region	5
IIId	11-50	≥7	Very Poor and Poor		2
IVa	≥51	≥7	Subnormal to Good	Prehistoric motifs that are representative of well-defined and/or well-understood regional and/or local styles; are well represented in Sloan Canyon NCA. The larger size of the assemblage makes it unusual for the local region. May include some prehistoric motifs that are either of a distinctive and/or unusual style localized to Sloan Canyon NCA, or are not well represented at other sites in the NCA	4
IVb	≥51	≥7	Very Poor to Poor		2
Va	≥2	≥2	Subnormal to Good	Site is dominated by prehistoric motifs that are in a restricted regional and/or localized style—may be unique to, or poorly represented, in Sloan Canyon NCA.	5
Vb	≥2	≥2	Very Poor to Poor		2
VIa	≥1	≥1	Subnormal to Good	Motifs/panels that portray historic themes or subjects and can be identified accordingly. Historic subjects are a rare motif in Nevada's rock art	4
VIb	≥1	≥1	Very Poor and Poor		2

‡Elements are defined as the constituent parts of a motif/design—it does not refer to the number of motifs

[a]Site size is determined by whichever is greater: the number of motifs present or the number of panels. Duke et al (2004: Table 41) report that the average number of motifs per site surveyed is 41.3 and the average number of panels per site is 7.3.

[b]Condition—**Very Poor**—Motifs or panels are superimposed by very prominent graffiti/defacement and/or more than 40% of the surface of the motif/panel has eroded away; **Poor**—Some graffiti/defacement superimposes motifs/panels and/or some erosion affecting 20-40% of the motif or panel; **Sub-Normal**—Graffiti/defacement is present but not superimposing motifs/panels—it is intrusive and pollutes the visual appearance of the site; **Normal**—no graffiti or defacement present—some signs of natural erosion (exfoliation or other) on motifs/panels

but not posing an immediate threat to site integrity; **Fine**—No graffiti/defacement present—few signs of natural erosion; **Good**—No graffiti/defacement and no signs of natural erosion.

[c]Significance is an assessment of site condition and site characteristics—sites rated 1-2 are of no or low significance; 3 = normal significance; and 4-5 = sites of particular significance. Significance does not reflect a site or panel's NRHP status.

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APPENDIX E

Interpretative Strategy

DRAFT SLOAN CANYON NATIONAL CONSERVATION AREA INTERPRETATIVE STRATEGY

The cities of Las Vegas and Henderson, Nevada, form one of the fastest growing metropolitan areas in the United States. A rapidly expanding, urban and suburban metropolitan area of homes, businesses, and infrastructure now surrounds the well-known lights of The Strip. Yet immediately on the edges of this expansion, much of the land is open and undeveloped. This constantly changing interface of urban and natural settings provides unique challenges and opportunities for the Bureau of Land Management (BLM), Las Vegas Field Office, which manages public lands comprising much of this open space. In November 2002, Congress designated the Sloan Canyon National Conservation Area (NCA), located adjacent to the City of Henderson, to preserve and protect a portion of southern Nevada's Mojave Desert as a permanent asset for future generations.

Although residential housing, schools, parks, and businesses will eventually border much of the northern and western edges of the NCA, at present, the conservation area is undeveloped and rarely used. There is no visitor facility and no single entrance, there are few roads, and most visitors do not come into contact with BLM staff. However, the future urban and diverse audience will need to understand the NCA's valuable natural and cultural resources to appreciate and protect them. Finding ways to achieve this understanding will be the challenge of the NCA Interpretive Program.

This strategy clarifies and sets direction for the Interpretive Program at the Sloan Canyon NCA. It provides a vision for future interpretation, education, and visitor experience opportunities. The strategy guides the development of an effective interpretative program that will serve visitors; will promote the health of the land; and will enhance the public's enjoyment, understanding, and appreciation of the NCA. This document contains a brief overview of the interpretative planning process, a discussion of the purpose and significance of the NCA, the existing visitor conditions in the NCA, and high-level actions related to the NCA's interpretive goal and objectives.

1.0 THE INTERPRETIVE PLANNING PROCESS

The ultimate goal of the interpretive planning process is to establish a cost-effective, tightly focused, high-quality program that effectively addresses all audiences and that identifies a variety of visitor experience opportunities. Building on the high-level management actions prescribed in the Sloan Canyon NCA Resource Management Plan (RMP), this strategy provides a framework within which a more detailed comprehensive interpretive plan will be prepared. It provides tactical guidance for subsequent planning and leads to the implementation of actions directed toward interpretation and visitor experience opportunities.

This strategy will help focus collaborative planning discussions with internal interpretive team members (e.g., subject matter experts) and external stakeholders. External stakeholders could include surrounding communities, interested tribes, and other federal agencies. Subsequent planning will include the development

of appropriate interpretive services, facilities, programs, and media that protect and preserve resources while communicating the NCA's purpose, significance, compelling stories, themes, and values.

In addition to a tiered planning approach, the Interpretive Program will integrate and support the ongoing planning efforts of other resource teams. For instance, there is a common interest in managing the North McCullough Wilderness Area for key visitor experiences; therefore, recreation planning should strongly tie with the Interpretive Program.

2.0 PURPOSE OF THE SLOAN CANYON NCA

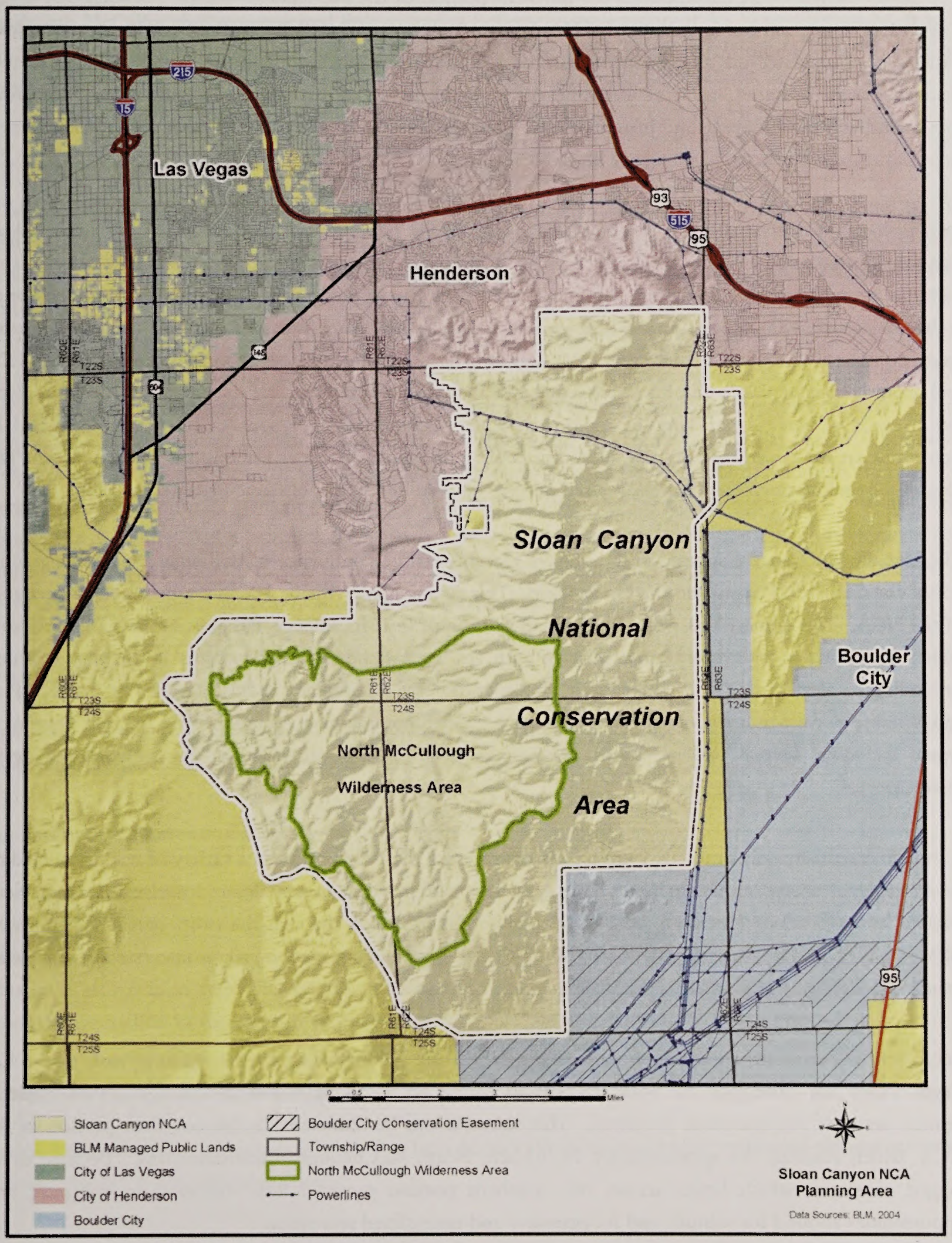
The Clark County Conservation of Public Land and Natural Resources Act of 2002 (the Clark County Act) established the Sloan Canyon NCA and the North McCullough Wilderness Area, which is entirely contained within the NCA. The approximately 48,438-acre NCA forms the natural, mountainous southern skyline of the cities of Henderson and Las Vegas and contains unique scenic and geologic features and important archaeological sites (see Figure E.1). The centerpiece of the NCA is the Sloan Canyon Petroglyph Site, one of the most significant cultural resources in southern Nevada. More than 300 rock art panels with nearly 1,700 designs represent native cultures dating from the Archaic to historic era.

The purpose of the Sloan Canyon NCA, per the Clark County Act of 2002, is—

"…to conserve, protect, and enhance for the benefit and enjoyment of present and future generations the cultural, archaeological, natural, wilderness, scientific, geological, historical, biological, wildlife, educational, and scenic resources of the Conservations Area."

The Clark County Act directs the Secretary of the Interior, through the BLM, to manage the Sloan Canyon NCA in a manner that conserves, protects, and enhances the Conservation Area's resources for the benefit and enjoyment of present and future generations. The Clark County Act identifies cultural, archaeological, natural, wilderness, scientific, geological, historical, biological, wildlife, educational, and scenic resources as important reasons for establishing the NCA. The designation of the North McCullough Wilderness Area, administered under the Wilderness Act of 1964 and Titles II and VI of the Clark County Act, requires that approximately 14,763 acres within the NCA be preserved and protected in their natural, primitive condition.

Figure E.1. Sloan Canyon National Conservation Area Planning Map



2.1 Significant Features of the Sloan Canyon NCA

The Sloan Canyon NCA encompasses the northern portion of the McCullough Range, lies southeast of the City of Las Vegas, and borders the City of Henderson. Volcanoes formed the McCullough Range, and a long basalt spine dominates the topography within the NCA. The eastern slopes of the range are much steeper than the western slopes, and the ridgeline offers excellent views of the Las Vegas Valley, numerous mountains, and the Eldorado and Jean dry lakes. Elevations within the NCA range from about 1,800 feet on the southeastern border to 5,000 feet at Black Mountain.

Archaeological evidence suggests that humans have used the NCA resources for nearly 7,000 years. Sloan Canyon, located within the southwestern portion of the NCA, contains more than 1,700 rock art elements within a 0.5-mile stretch of canyon. Although cultural affiliation has not been determined for each panel, archaeologists studying Sloan Canyon believe it has been used by many previous cultures. An ethnographic study completed for this Draft Resource Management Plan/Environmental Impact Statement (RMP/EIS) and ongoing consultation with tribes have confirmed the cultural significance of the Sloan Canyon Petroglyph Site to today's Native Americans. In addition to Sloan Canyon, cultural resources inventories identified 19 other rock art sites in and around the NCA, but never in the quantities or as elaborate as in the canyon. The Sloan Canyon Petroglyph Site has been listed on the National Register of Historic Places since 1978.

The McCullough Range is located in the Mojave Desert near the confluence of two other unique geographic zones: the Colorado Plateau and the Great Basin. This setting plays a major role in the natural characteristics of the NCA. The primary ecosystem in northern portion of the McCullough Range is Mojave Desert Scrub, which is dominated by creosote and bursage with scattered stands of cholla cactus in varying densities, depending on elevation. The Blue Diamond cholla, considered a potential candidate species by the U.S. Fish and Wildlife Service, is also found within the NCA. Small communities of unique and isolated vegetation types, including several Special Status Species of beardtongue, exist within the canyon and wash microclimates.

Although essentially only one ecosystem type is represented, the NCA supports a variety of wildlife, including desert bighorn sheep, mountain lions, Gila Monsters, and the threatened desert tortoise. Two artificial wildlife water locations (guzzlers) were developed within the NCA through the cooperative efforts of the BLM, the Nevada Department of Wildlife (NDOW), and private conservation groups interested in improving habitat for bighorn sheep and other wildlife species.

Recreation is becoming an important use of the North McCullough Range. As urban growth in the Las Vegas Valley has enveloped the northern portion of the NCA, hiking, mountain biking, and off-highway vehicle use have become more prevalent. This situation can be contrasted to the southern portion of the NCA, which contains the approximately 14,763-acre North McCullough Wilderness Area. Because of its rugged character, which limits access, this southern portion received little visitation in the past, and opportunities abound for solitude and for primitive and unconfined recreation.

3.0 EXISTING CONDITIONS

The North McCullough Range received little visitation before the designation of the Sloan Canyon NCA and the North McCullough Wilderness Area. Although the NCA is still undeveloped, usage along the urban interface has increased with the growth of the Las Vegas Valley population.

3.1 User and Audience Profiles

BLM began observations in November 2003 to determine patterns and trends of visitor use at the NCA. Between November 2003 and July 2004, about 4,000 total visitors were counted within the NCA, averaging 15 visitors per day. Extrapolated to a full calendar year, the observed visitor total would be about 5,500 annual visits.

Because visitation data is limited, for purposes of planning and analysis, it was assumed that actual visitation is five times higher than the observed. Hence, current visitation is estimated at 28,500 visitors per year. Even without the development of additional visitor facilities, visitation is expected to increase as the NCA becomes better known and as the regional population and surrounding development grows. Although the City of Henderson had about a 22-percent growth rate for 2000 to 2003, the current annual growth rate in Clark County is 4 percent (Clark County 2003a). As a conservative estimated, if this constant growth rate were applied to NCA visitation, the total visitation in 2030 would be roughly 75,000. Specific NCA usage is unknown, but the general visitation categories are described below.

First-Time Visitors

First-time visitors seek interpretive opportunities and request information about facilities, recreational opportunities, and cultural and natural resources of the area or region.

Repeating and Recreational Users

Some repeat users may be interested in a few interpretive programs but are usually prepared to engage in an interpretative activity. Recreational users often travel with people who are familiar with the area and are not anxious to take time out from their activity to attend "educational/interpretive programs." Their main interest is information regarding conditions related to their chosen recreational activity, which might be posted at the trailheads; therefore, there might not be a need for them to visit the visitor center.

Native American Traditional Users

Native Americans from surrounding tribes that have historically used the area for traditional cultural activities may visit the NCA for cultural purposes.

Scientists/Researchers

Scientists and researchers from universities and government agencies may come to the NCA to conduct research. These groups will be required to obtain a permit containing stipulations for activities and as a condition of their research.

Hunters

Hunters permitted by NDOW would be a very small percentage of the visitors to the NCA.

Outreach Audience

Because of the NCA's proximity to the urban Las Vegas Valley, there is a potentially large audience for outreach programs. This audience includes schools, service clubs, sporting clubs, and special events and could involve concessionaires and tour operators.

3.2 Potential Facilities and Access

No developed facilities exist within the NCA. However, the Sloan Canyon NCA Draft RMP/EIS action alternatives discuss potential access points into the NCA, including the northern access to Sloan Canyon, Hidden Valley, Dutchman Pass, Quo Vadis, and Sutor Hills. Figure E.2, Sloan Canyon NCA Potential Access Facilities Map, shows the locations of these potential facilities. Additional development of facilities could occur over time as visitation increases and as monitoring indicates changes to natural and cultural resources.

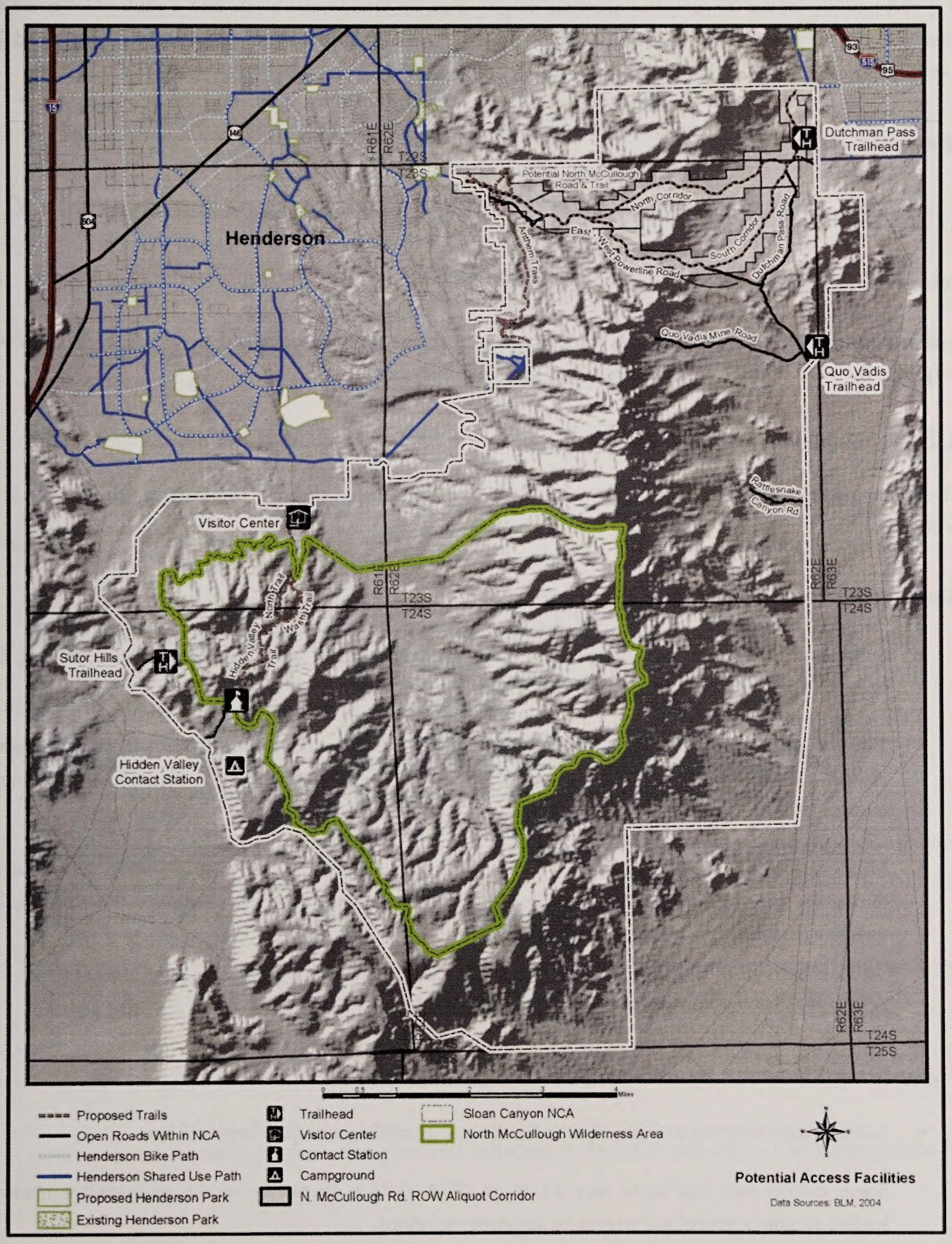
Northern Entrance of Sloan Canyon

A visitor center could be constructed near the NCA boundary at the north entrance to Sloan Canyon. The visitor center could serve as an access point for the Sloan Canyon Petroglyph Site, provide onsite resource protection and interpretation, and NCA management. The visitor center could include amenities such as Sloan Canyon NCA staff offices, facilities to support maintenance and law enforcement, an interpretive use area, and classrooms.

Hidden Valley Trailhead

A gravel parking lot for 15 cars, an interpretive kiosk, and a vault toilet could be constructed inside the NCA boundary.

Figure E.2. Sloan Canyon NCA Potential Access Facilities



Dutchman Pass Trailhead

A gravel parking lot for 30 cars, an equestrian staging area, an interpretive kiosk, and a vault toilet could be constructed near the northeastern boundary of the NCA at Dutchman Pass. This parking area could be located near the eastern of the proposed North McCullough Road.

Quo Vadis Trailhead

A ½-acre gravel parking lot could be constructed with an interpretive kiosk and vault toilet.

Sutor Hills Trailhead

A five-car gravel parking lot could be constructed with an interpretive kiosk and vault toilet. For analysis purposes, the total disturbed area was assumed to be 4,500 square feet.

3.3 Issues and Influences

The following resources and management issues could be addressed through the interpretative media (e.g. brochures, Web sites).

Safety Issues

- Summer temperatures in southern Nevada regularly exceed 100°F, and many visitors may be unprepared for the severity of such exposure.
- There is little road access into the entire NCA, and most portions require self-sufficiency. Some visitors may be unprepared, ill equipped, or inexperienced in handling wilderness, wildlife, and weather dangers.
- Monsoon-driven heavy thunderstorms, accompanied by lighting and flash flooding, often occur during the summer, and some of the most frequently visited areas are wash bottoms. Visitors may be unaware that these floods are extremely dangerous.
- At this time, no potable water is available in the NCA.

Visitor-Related Resource Issues

- Some visitors may not practice "Leave No Trace" or minimum impact resource use.
- Some visitors may not know they are in an NCA and/or do not know the rules and regulations leading to unintentional infractions or resource violations.
- Backcountry use may occur on top of cultural resources sites.

- The limited number of access points may concentrate visitor use, impacting the resource and visitor experience.

Other Management Issues

- A perceived and sometimes real conflict might exist between recreational users.
- The public and visitors do not recognize the significance of Sloan Canyon NCA.

4.0 Interpretive Goal and Associated Objectives and Actions

The Sloan Canyon NCA Draft RMP/EIS identifies the following interpretative goal:

Provide opportunities for on- and offsite users to develop an appreciation of the NCA's resources through educational, informational, and inspiring interpretative experiences.

The objectives and high-level actions listed below are designed to meet the interpretive goal for the NCA and to provide a framework for more detailed planning:

Objective

Provide various opportunities for education, accurate information, and interpretation that meets the user's needs (e.g., tours, kiosks, brochures, virtual tours, Web site, libraries, community outreach)

Actions

- Provide thematic interpretive programs to enhance the appreciation, understanding, and protection of the NCA's natural, cultural, and recreation resource values.
- Identify ways to increase the NCA's interpretive services through cooperative efforts with other public agencies, cooperating associations, permitted outfitters and guides, concessionaires, and other government and nongovernment organizations.
- Develop criteria and procedures for identifying interpretive needs and evaluating programs and materials.
- Identify and maintain accurate databases on interpretive projects and facilities associated with the NCA.
- Prepare an annual implementation plan that will identify the NCA priorities to be accomplished for the year.

Objective

Provide visitors with information on traditional uses that is developed closely with interested tribes.

Actions

- Partner with interested Native American Tribes to provide direct interpretation and presentation of resources and an educational experience consistent with the NCA mission, including integrating regional historic and contemporary tribal relationships with the NCA and an expanded story of traditional cultures into the Interpretive Program.

Objective

Provide interpretation that promotes stewardship behavior in users so they will act in a way that minimizes impacts to the NCA's resources.

Actions

- Use interdisciplinary teams to identify local resource management issues to be addressed by interpretive efforts.
- Promote, coordinate, and disseminate research to enhance scientific understanding of the NCA environment and incorporate this research into the Interpretive Program for the public's benefit.
- Select interpretive media and techniques that minimize impact to and always enhance the protection of the resources.

Objective

Provide information, guidance, and regulations for visits and orientation to facilities.

Actions

- Identify and compile basic information (safety, orientation, and recreational information) that should be provided to customers through appropriate media (online, visitor access areas, cooperative sites, and programs).

Objective

Increase public awareness of NCA management goals.

Actions

- Broaden public support for the NCA by providing outreach programs to a diverse audience. Inform the public about the sensitive nature of the NCA resources, purpose of the NCA designation, and need for NCA regulations.

- Consider developing a diverse range of high-quality experiences that is consistent with NCA purposes and is based on NCA's resources and values, with consideration for sustainable practices and traditional uses.

APPENDIX F

Draft Litter Cleanup Plan and Public Lands Awareness Campaign

DRAFT SLOAN CANYON NCA LITTER CLEANUP PLAN AND PUBLIC LANDS AWARENESS CAMPAIGN

The congressionally designated Sloan Canyon National Conservation Area (NCA) consists of nearly 48,438 acres that encompass a diverse landscape, ranging from the North McCullough Wilderness Area (Wilderness) to borders with densely populated urban areas. The Sloan Canyon NCA Act (Title VI of the Clark County Conservation of Public Land and Natural Resources Act of 2002), which established the NCA, requires the Bureau of Land Management (BLM) to develop a management plan for the NCA, including a plan for litter cleanup and a public lands awareness campaign on public lands in and around the Conservation Area. Incorporating this Litter Cleanup Plan and Public Lands Awareness Campaign into the Draft Resource Management Plan/Environmental Impact Statement (RMP/EIS) provides adaptability and efficiency in implementing cleanup actions by identifying management priorities and related potential decisions and helps ensure that an effective anti-litter message is delivered.



Northeast portion of the NCA depicting illegal disposal of automobile.



Illegal paintball course (Northeast portion of the NCA.)

Litter and trash are fundamental problems affecting the NCA, and related concerns were brought forward during the public scoping process. Materials currently found within the NCA range from litter associated with the NCA's proximity to the urban area, to trash such as abandoned automobiles, appliances, furniture, and shell casings. In addition, the illegal dumping of construction and landscaping debris is a common source of trash on the NCA edges.

Other contributing factors to the litter problem include prior recreational use and the lack of public education and awareness. Furthermore, before the establishment of the NCA, this area was part of the 3 million acres of land under the responsibility of the BLM Las Vegas Field Office and not under special management. The litter and trash problem is compounded by the areas increased use as a result of the changing population of Clark County, Nevada, which is one of the fastest growing counties in the nation, with an average of 10,000 new residents arriving and 5,000 residents leaving monthly (BLM 2004e). This population growth, which includes the areas immediately surrounding the NCA, is expected to continue. In addition, awareness of the NCA since its

designation is expected to increase visitation to the area and consequently the potential for additional litter; however, litter and trash dumping should decrease with the increasing BLM management presence.

1.0 LITTER CLEANUP PLAN

To proactively address the litter problem, the Sloan Canyon NCA staff and BLM Las Vegas Field Office have implemented an interim management plan, which was started during the development of the Sloan Canyon Draft RMP/EIS. The purpose of this interim management, which is based on existing laws, regulations, and guidance, including the *Las Vegas RMP* (BLM 1998a), is to maintain the resources and values that were the basis for creating the NCA while more detailed planning is in progress. Numerous elements comprise the interim management plan for the NCA, but those pertaining to litter include focus on cleaning up some of the most damaged areas, establishing the boundaries of the NCA through signing, educating the public on the NCA's existence and applicable regulations, and enforcing current rules. The two basic elements of current litter control, which will be further discussed in this plan, are litter cleanup and prevention via law enforcement and education.

Currently, the Sloan Canyon NCA management is hosting volunteer desert cleanups on a nearly monthly basis, including a major National Public Lands Day event in October 2004. During that event, 250 volunteers picked up more than 35 tons of trash, and the City of Henderson Public Works Department and volunteer off-highway vehicle (OHV) user groups removed more than 20 automobile bodies. During the interim period, signs have been placed along the NCA boundary and at main access points leading to the internal Wilderness boundary. A program for visitor contact and education by NCA staff and BLM Law Enforcement was undertaken with an introductory warning period for OHV use, recreational target shooting, and camping in portions of the NCA subject to BLM and Clark County use closures, followed by enforcement actions by BLM Law Enforcement and Las Vegas Metro Police.

This Litter Cleanup Plan is intended to build upon the progress made during interim management to eventually result in a litter-free NCA. Because of the magnitude of the existing litter deposits and the large area affected, a two-pronged approach of cleanup and prevention will be used to reach this goal.

1.1 Litter Zones

To facilitate implementing the Litter Cleanup Plan, the NCA was divided into three litter zones based on the Management Emphasis Areas zones described in Chapter 2 of the Draft RMP/EIS, current litter conditions, accessibility, and proximity to future developed areas.

- **Zone 1, High Litter Management Area**—is mainly the northern portion of the NCA near the urban interface that historically contained large amounts of litter and dumping. Although at present some of the area has been cleaned up through volunteer efforts, this zone is easily accessed by illegal dumpers and continues to have a high priority for cleanup and enforcement. These heavily littered areas are considered to have high probability for future litter concerns.

- **Zone 2, Moderate Litter Management Area**—forms the southeastern and southwestern border of the NCA and the highly visited Sloan Canyon Petroglyph Site. Zone 2, which has medium to low concentrations of litter, would require moderate litter management and enforcement. Once existing litter is removed, it could be kept at a minimum through public awareness and education.

- **Zone 3, Low Litter Management Area**—consists of the Wilderness where the amount of litter is very low. Because visitation is also low, this area would need minimal litter management and enforcement.

Monitoring would be used to measure the effectiveness of the Litter Cleanup Plan and track changes in litter levels. BLM could conduct visual surveys of the NCA to determine the effectiveness of litter removal; and identify areas within the NCA that require special or additional litter cleanup efforts.

1.2 Cleanup Phase

The first step in creating a litter-free NCA is to remove existing trash and litter. Volunteer programs have historically been the primary mechanism for cleaning up the NCA, and this tradition would continue, focusing on Litter Zone 1 first, until the current litter is removed. BLM would maintain partnerships with local communities such as the City of Henderson, businesses, and organized volunteer groups to help ensure a successful removal campaign. It is anticipated that much of the existing litter would be removed before the completion of the RMP. In the Wilderness, the techniques employed to remove the litter would be those that cause the least impacts. Portion of the NCA could require special cleanup processes such as areas that have been heavily used for target shooting. In these areas, the surface may need to be scraped to remove all accumulated material. Once the NCA is clean, the level of new litter within the NCA will be monitored and cleanup events will be scheduled as needed.

1.3 Prevention Phase

BLM would develop anti-litter educational messages aimed at all NCA visitors. In addition, litter enforcement activities would be increased.

1.3.1 Education

During the cleanup phase and into the foreseeable future, BLM would encourage visitors to maintain and take pride in the condition of the NCA through education and by developing an awareness of the litter problem and its associated impacts on the NCA's natural resources. Those visitors who understand the values of the NCA, along with homeowners bordering the NCA, will likely become strong advocates and good stewards. Litter not only adversely affects the natural environment, visual amenities, wildlife, and human health but also affects funding and staffing resources. Litter prevention costs less than litter cleanup. Particular attention would be given to developing appropriate outreach materials and educational programs, particularly anti-litter educational programs directed to various user groups of the NCA. A comprehensive

litter messaging strategy or outreach themes would be developed as part of a detailed interpretive planning and would likely include "Leave No Trace" outdoor ethics.

The BLM could seek to exemplify and encourage good stewardship of natural resources by reducing, re-using and renewing materials where possible. For example, a recycling program could be adopted to further promote litter prevention and to provide educational messages on the importance of re-using limited resources. In addition, to reduce the amount of paper that might become litter, the BLM could use Web site communication instead of printed materials where possible. NCA maps and other information could be viewed online or via interactive exhibits at visitor facilities.

1.3.2 Law Enforcement

Although education and public awareness efforts can provide considerable assistance in changing behavior patterns to abate litter problems, enforcement is an important tool that can make a lasting difference. The purpose of enforcement is to minimize the impact of littering and dumping; promote and achieve compliance with the law and enable courts to uphold the law by punishing offenders and deterring others.

The term "enforcement" has a broad meaning, and BLM could take a range of actions such as offering information, advice and warnings, penalty notices that may require action within a specified time period, and prosecutions. BLM would work in cooperation with local agencies to promote a consistent approach, including policies and guidelines to the enforcement of dumping and littering regulations (43 *Code of Federal Regulations* 9640.1 (f) and (k)). Enforcement duties could include tagging and towing abandoned vehicles, issuing warnings, and investigating illegal dumping within the NCA. BLM could explore the possibility of developing a trash reporting hotline and consider the development of NCA-specific special regulation such as the banning spray paint cans from the NCA.

2.0 PUBLIC LANDS AWARENESS CAMPAIGN

The Sloan Canyon NCA Act requires BLM to develop a plan for a public lands awareness campaign. As part of this plan, BLM would seek to increase cooperation with the other public land agencies (US Forest Service, National Park Service, U.S. Fish and Wildlife Service, and the Nevada Department of Wildlife) to develop messaging on a variety of public lands issues, including the enforcement of existing litter laws and regulations. The campaign could include establishing and maintaining relationships with other Federal, State, and local governments (City of Henderson, Boulder City, and Clark County) to assist in the public lands messaging.

Several existing programs, foundations, and partnerships address issues, such as littering, on federal lands in southern Nevada. The Sloan Canyon NCA could optimize resources and increase efficiency by utilizing and integrating with these established programs to increase public education and awareness and to maintain and improve on current volunteer programs. In addition, public land agencies could develop strong relationships with local media for delivering public lands messages, including anti-littering and notifications of upcoming cleanup events.

APPENDIX G

Black Mountain Communication Site Management Plan*

* Subject to amendment to comply with the Sloan Canyon NCA Act and future technological advances

BLACK MOUNTAIN (ARDEN)
COMMUNICATION SITE MANAGEMENT PLAN

Bureau of Land Management

Las Vegas Field Office

Recommended by: _____ 11/3/99

Rex Wells
Assistant Field Manager
Las Vegas Field Office

Date

Approved by: _____ 11/3/99

Mike Dwyer
Field Manager
Las Vegas Field Office

Date

Table of Contents

Table of Contents ii

Terms and Definitions iv

Applicable Documents vi
I. General Information and Background 1

A. Introduction 1
B. Location and Identification 1
C. Physiographic Factors 1

II. Site Management Objectives 2

A. Policy 2
B. Objective 2
C. Authority 3
D. BLM Application Requirements 3
E. Case Processing Coordination 4

III. Plan Development 5

IV. Existing Situation 5

V. Direction And Criteria For Future Management And Development 6

A. Alternatives considered: 6
B. Evaluation of alternatives: 6
C. Criteria providing guidance for site management, land use, and user authorization decisions 7

VI. Design and Construction Parameters 8

A. General 9
B. Buildings 9
C. Antennas, Microwave Dishes, and Support Structures 10
D. Electrical/Electronic 11
E. Roads, Parking Areas, Disturbed Areas 11
F. Interference 11
G. Stipulations 11

VII. Procedures to Ensure Compliance with Grant Stipulations and Terms of the Site Management Plan 14

A. User's Association Meetings 14
B. Compliance Inspections 14
C. Audits 14

VIII. Maintenance and Update of the Site Management Plan 14

Appendix A Site Maps A-1

Appendix B User's Association B-1

Appendix C Right-of-Way Grant Holders..... C-1

Terms and Definitions

1. Authorized Officer: Any employee of the U.S. Department of the Interior, Bureau of Land management, who has been delegated the authority to perform the duties.

2. BLM: Bureau of Land Management.

3. Department: U.S. Department of the Interior.

4. Electronic Interference: Any radio frequency associated interaction that impedes or hinders another service.

5. FAA: Federal Aviation Administration, U.S. Department of Transportation.

6. Facility: They physical plant, to include buildings, tanks, towers, generators, fences and the like needed to operate or provide a particular electronic service.

7. FCC: Federal Communications Commission, U.S. Department of Commerce.

8. FLMA or Act: Federal Land Policy and Management Act of October 21, 1976 (43 U.S.C. 1701 *et seq.).*

9. FM Broadcast (Full Power): An FM radio station licensed by the FCC to provide a full range of services to the general public.

10. Form NV 2800-18: Communication Site Installation Data Form.

11. Holder: Any individual, partnership, corporation, association, or other business entity, or any Federal, State, or local governmental entity including municipal corporations who has received a right-of-way (ROW) grant or reservation for communications site use on the Black Mountain (Arden) Communication Site.

12. IRAC: U.S. Interdepartmental Radio Advisory Committee.

13. ROW Grant: A document issued by the Bureau of Land Management authorizing the use of public or Federal lands for the construction, operation, maintenance, and termination of a project.

14. ROW Reservation: Same as a ROW grant, except that it is an instrument used to authorize Federal agencies to occupy public land.

15. SF-299: Standard Form 299, "Application for Transportation and Utility Systems and Facilities on Federal Lands."

16. Site Users (Users): This term carries the same meaning and inference as that of "Holder" (see above).

17. Television Broadcast: Includes right-of-way holders that operate FCC-licensed facilities used to broadcast UHF and VHF audio and video signals for general public reception, and communication equipment directly related to monitoring of the use.

18. AM and FM: radio broadcast includes rights-of-way that contain FCC-licensed facilities primarily used to broadcast amplitude modulation (AM) or frequency modulation (FM) audio signals for general

public reception, and communication equipment directly related to the operation, maintenance, and monitoring of the use.

19. Broadcast Translator and Low Power Television: includes FCC-licensed translators and low power television, low power FM radio, and communication equipment directly related to the operation, maintenance, or monitoring of the use. Microwave facilities used in conjunction with LPTV and broadcast translators are included in this category.

20. Cable Television: Includes FCC-licensed facilities that transmit video programming to multiple subscribers in a community over a wired or wireless network, and communication equipment.

21. Commercial Mobile Radio Service/Facility Manager: Includes FCC-licensed commercial mobile radio facilities or their holders providing mobile communication service to individual customers, and communication equipment.

22. Private Mobile Radio Service: Includes FCC-licensed private mobile radio systems primarily used by a single entity for mobile internal communications and communication equipment.

23. Cellular: Includes FCC-licensed systems and related technologies used for mobile communications using a combination of radio and telephone switching technology and providing public switched network services to fixed and mobile users within a defined geographic area.

24. Microwave: Includes FCC-licensed facilities used for long-line intrastate and interstate public telephone, television, information, and data transmissions, or used by pipeline and power companies, railroads, and land resource management companies in support of the holder's primary business.

25. Other Communication Uses: Include holders of FCC-licensed private communication uses such as amateur radio, personal/private receive-only antennas, passive reflectors, natural resource and environmental monitoring equipment, and other small, low-power devices used to monitor or control remote activities.

Applicable Documents

The following documents form a part of this plan to the extent specified herein. In the event of a conflict between the documents referenced herein and the contents of this plan, the contents of this plan may be superseded depending upon the specific situation involved.

Government Documents

Title	Source
Manual of Regulations & Procedures for Federal Telecommunications & Radio Frequency Management Information Administration Revised: September 1985	U.S. Department of Commerce
Code of Federal Regulations, Title 43, Public Lands: Interior, Part 2800 through 2883	Superintendent of Documents Government Printing Office Washington, D.C. 20402
Code of Federal Regulations, Title 47, Telecommunications, Parts 0 through end (4 volumes)	Superintendent of Documents Government Printing Office Washington, D.C. 20402
Bureau of Land Management Handbook H-2860-1, Communication Site Right-of-Way Management Manual Release 2-268, 3/29/90	Department of the Interior Bureau of Land Management
Federal Land Policy and Management Act of1976, 90 Stat. 2743	Department of the Interior Bureau of Land Management
FAA Advisory Circular, AC No. 70-7460-26, "Proposed construction/Alternation of Object that May Affect Navigable Air Space"	Federal Aviation Administration

Non-Government Documents

Title	Source
National Electrical Safety Code	National Fire Protection Association 1984 Battery March Park Quincy, MA 02269

Uniform Building Code Conference of 1985	International Building Officials 5360 So. Workman Mill Rd. Whittier, CA 90601
American National Standards Institute Circular ANSI C95.1-1982	The Institute of electrical and Electronic Engineers, Inc. 345 East 47`h Street New York, NY 10017
Electronic Industries Association Standards EIA-IA-222-E	Electronic Industries Association 1722 I Street NW, Ste 300 Washington, D.C. 20006

I. General Information and Background

A. Introduction

A plan of development was not prepared in advance of construction at the Bureau of Land Management's (BLM's) Black Mountain (Arden) Communication Site. Consequently, facilities were constructed to fit each individual requirement without regard for future development of the site. Many problems are associated with the site due to this lack of planning, e.g., facilities are scattered, maintenance of the common use facilities needs improvement, and there is no standardization regarding identification of facilities. The mountain peak has a high demand for communication facilities due to its favorable proximity to the population center in and around Las Vegas, Nevada. The scattered proliferation of structures adds to the visual impact of the unplanned development.

This management plan has been developed to provide guidance and direction in the subsequent development and use of the Black Mountain (Arden) Communication Site, consistent with BLM policies for efficient use of space and structures, and minimizing visual impact. The Plan also provides the structure and guidelines for a site User's Association, comprised of BLM Right of Way (ROW) grant holders, which will serve as a self-governing body to administer further development of the area in accordance with pertinent regulations of the BLM.

B. Location and Identification

The Black Mountain (Arden) Communication Site is located on the western slope of the McCullough Range, approximately 16 miles south-southeast of Las Vegas, Nevada. This site is located in Township 23 South, Range 62 East, Mount Diablo Meridian (MDM), Nevada, Sections 15 and 16. The elevation of the site ranges from approximately 4315 to 4520 feet above mean sea level. Geographic coordinates for the approximate site centerpoint are 35-5644N 115-02-31W. See Appendix A for vicinity and detailed site maps.

C. Physiographic Factors

The Black Mountain (Arden) Communication Site lies on a level ridge-top on the western slope of the McCullough Range. The sides of the ridge northeast and south of the level ground around the site drop off steeply. This portion of the McCullough Mountains is largely volcanic, with massive outcroppings of basalt, and the surface of the ridge is covered with large and small boulders of this dark gray stone. The sparse soil between the rocks is shallow and gravelly. Vegetation is scattered low sage, creosote bush, and small, groundhugging cacti.

There are no known populations of threatened, endangered, or special status plants, and no potential habitat exists on the site's lands. A variety of wildlife species, including small mammals and rodents, inhabit or utilize the area. No threatened or endangered animal species are known to use or inhabit this general vicinity.

Development of mineral resources on site property has not taken place in the past, nor is expected in the future. Subject lands are not known to support significant, or highly desirable recreational opportunities.

The Communication Site lands are not known to be located in, or support the following resources or values: Areas of Critical Environmental Concern, Prime and Unique Farmlands, Floodplains, Native American Religious Concerns, wetland/riparian areas, wild and scenic rivers, wilderness, environmental justice, threatened or endangered species, or noxious weeds.

This site is well located for overview of the Las Vegas area. More than 2,000 feet higher in elevation than the Vegas Valley floor, the only portion of the valley not visible from the site's ground-level elevation is the eastern part of Henderson, Nevada. Line-of-sight potential is excellent in all directions except toward the 90 degrees ranging clockwise between southeast and southwest, which is blocked by higher elevations of the McCullough Range.

Physical access to the site is accomplished by driving south from Las Vegas on I-15 to the Henderson-Lake Mead cutoff (Exit 27/Lake Mead Drive/Highway 146). Proceed east approximately 4.3 miles to Eastern Avenue (traffic light). Turn right on Eastern Avenue, and follow the signs to Anthem. Bear left on Anthem Parkway (goes left under an overpass) to the intersection of Anthem Parkway and Alexandria Drive. At this intersection the road to the east (a dirt road proceeding straight) is marked "No Trespassing." Stay on this road for approximately 0.8 miles. Take a right turn and follow this road veering to the left past four yellow metal posts. Turn left at the next set of four yellow metal posts (old paved pot-holed road), and continue to the communication site (about two miles).

II. Site Management Objectives

A. Policy

It is the policy of the Bureau of Land Management to ensure that future development of the Black Mountain (Arden) Communication Site will be orderly and in the best interest of the general public. In addition, it is BLM policy that future site installations will be compatible, with efficient use of space and structures, as well as minimum visual impact that is consistent with the Visual Resource Management objectives of the BLM.

B. Objective

The objective of the Black Mountain (Arden) Communication Site Management Plan is to provide for the orderly development of the communications potential of the site. Strict adherence to this plan will result in the following benefits to site users, their servicing community, and the BLM:

- Maximize land use and technological efficiencies in order to minimize the physical disturbance to the land
- Identify location of existing facilities
- Identify authorized users and to eliminate unauthorized use
- Improve quality of site for telecommunication purposes
- Maximize full electronic potential of the site
- Minimize conflicts between user
- Minimize visual impacts to the land associated with site development - existing and future
- Encourage consolidation of existing and future users into a facility or facilities designed for multiple users
- Encourage users to participate in cooperative management with the BLM to assist in monitoring site use and maintaining of the access road and other common use facilities
- Provide service to the local community and the public in general
- Protect the interests of existing Rights of Way (ROW) grant holders in preserving a compatible environment for all communication site users
- Allow for future expansion to meet anticipated public demand for communication facilities on the site
- Reduce the administrative burden of site management for the BLM

C. Authority

Authority for issuing Rights of Way grants for telecommunication purposes is derived from the Act of October 21, 1976, 90 Stat. 2743, and the implementing regulations contained in 43 CFR 2800.

ROW grants issued prior to the Act of October 21, 1976, upon request for renewal, assignment or amendment, will be encouraged to convert to the above-cited statute and regulations. Stipulations will be included in the approval document to require participation in the site management plan whenever possible.

The Bureau of Land Management, Las Vegas Field Office, is responsible for administration of the subject public lands, which include the Black Mountain (Arden) Communication site.

It is an objective of the BLM to assure proper coordination of Bureau procedures with the procedures of the Federal Communications Commission (FCC) and the Interdepartmental Radio Advisory Committee (IRAC). The FCC grants station assignments to non-federal and state and appropriate political subdivision users. The IRAC grants station assignments to federal agencies.

D. BLM Application Requirements

All parties proposing to establish new communication facilities on the Black Mountain (Arden) Communication Site are encouraged to arrange a pre-application meeting with a BLM Las Vegas

Field Office realty specialist prior to submitting a formal application. The purpose of the meeting will be to discuss the proposal, to explain BLM site management and procedural requirements, and to resolve potential conflicts at an early state.

Such meetings greatly expedite the subsequent processing of an application for a grant. The application for a ROW grant shall be filed in the Las Vegas Field Office. A complete application consists of the following:

A completed application Form SF 299, "Application for Transportation and Utility Systems, and Facilities on Federal Lands." Information requested on the supplemental page should be attached, if applicable.

A map, U.S. Geological Survey quadrangle, aerial photo, or equivalent, showing the approximate location of the proposed ROW and facilities on public land and existing improvements adjacent to the proposal, is usually sufficient. Copies of the BLM Black Mountain (Arden) Communications Site Management Map are available for this use. Applications for new facilities should also include a plot plan. This plan should identify the improvements proposed within the area requested, and must show dimensions, materials, finished detail, etc., to indicate compliance with all design requirements.

Submission of "Communication Site Installation Data Form" (NV 800-18) is required for each transmitter/receiver system applied for. These forms are available from the BLM office in Las Vegas.

If the application is to collocate in an existing facility, a letter is required from the existing user to authorize such occupancy.

In addition, a non-refundable application filing fee, if required, must be submitted in accordance with 43 CFR 2808.3-1 before the application will be processed.

E. Case Processing Coordination

After preliminary adjudication of an application has been completed, the Las Vegas Field Office will send letters to all existing site ROW grant holders informing them of the new application and related technical information. Thirty (30) days will be allowed for submission of comments. Comments which pertain to the technical electronic aspects of the proposal should also be sent directly to the FCC or IRAC, with a copy to THE BLM. In such event, the comments should make reference to the applicant's FCC/IRAC file number and city of broadcast. This information can be obtained directly from the applicant.

Comments to FCC/IRAC should be sent to one of the following addresses:

The Secretary
Federal Communications Commission
1919 M Street, N.W.

Executive Secretary IRAC
Office of Telecommunications
US Dept. of Commerce Washington, D.C. 20554
1325 G Street, N.W. Washington, DC 20005

All comments should be specific and as detailed as possible and should present suggestions to remedy anticipated conflicts.

Comments received by the BLM, including those pertaining to interference, will be considered along with environmental and other factors in its decision process. All parties need be aware, however, that the BLM is not generally staffed with personnel with sufficient technical electronic expertise to routinely resolve interference problems or disputes. The BLM will thus rely heavily upon the FCC and IRAC in matters falling within the jurisdiction of those agencies, and may rely on the technical expertise of the existing users to determine interference problems and possible methods for resolution.

A ROW grant will not normally be issued until the applicant has provided evidence that an FCC or IRAC construction permit or operational license has been obtained. Under certain circumstances, the BLM can issue a ROW grant but withhold "Notice to Proceed" until appropriate FCC/IRAC documentation has been obtained.

As a general policy in dealing with interference disputes, the responsibility for correcting interference will be upon the applicant or the owner of the offending equipment. Any user affected will also be expected to extend all reasonable cooperation in reaching a satisfactory resolution. Because the circumstances may vary so widely, interference conflicts must be dealt with on a case-by-case basis.

III. Plan Development

This plan has been developed by the Las Vegas Field Office staff through consultation with specialists in the BLM Nevada State Office and the existing site users. Implementation of this plan will become effective upon its approval by the Las Vegas Field Manager of the Bureau of Land Management.

IV. Existing Situation

The Black Mountain (Arden) Communications Site has ten functional facilities which accommodate the authorized users. See Appendix A for a depiction of the present development. Appendix C is a listing of the ROW grant holders and primary contact.
Facility location, to date, has been determined on an individual first come, first serve basis, resulting in structures, antennas and power lines/poles scattered over the site with little regard to future expansion

needs. Visual impact has been considered in each request to construct a facility. However, little emphasis has been placed on requiring collocation in an existing facility.

Site security is provided by the ROW holder for individual facilities. Some of the existing sites are fenced, and some fences have padlocks or multiple padlocks so each ROW holder or tenant has access to (or through) individual facilities.

License frequencies are issued and approved by the FCC or IRAC. A copy of the approved license or construction permit must be submitted to the BLM with all communication site applications. After the ROW has been granted, there will be no physical construction on-site until the FCC construction permit is received by BLM.

Users operating in trespass will be required to apply for a ROW grant from BLM. Trespass resolution may result in payment of back rental, penalties, or other fees.

V. Direction And Criteria For Future Management And Development

The Black Mountain (Arden) Communications Site has developed access and electrical power. It is well situated to provide communication services to the valley surrounding Las Vegas, Nevada. With the increasing demand for communication facilities in the region, it is anticipated that more requests to locate additional facilities on this site will be received over the next several years.

A. Alternatives considered:

1. No action - that is, no further development of communication capabilities at the site.

2. Allow construction at the site on an "as applied for" basis.

3. Provide for future expansion through construction of a new facility capable of accommodating multiple users.

4. Consolidate existing and future users into as few buildings as possible.

B. Evaluation of alternatives:

1. No action. This alternative does not allow for full utilization of the communication potential of the site.

2. Allow construction on an "as applied for" basis. This alternative does not provide for orderly development and could lead to increased potential for physical and electromagnetic interference problems and electromagnetic hazards to humans. This approach could also result in a

proliferation of buildings and towers and add to the visual impacts as seen from the valleys below.

3. Provide for future expansion through construction of multiple-user facilities. This alternative would produce more orderly development and expansion of the site and would be expected to significantly reduce the potential for interference conflicts among current and future users.

4. Consolidate existing and future users into as few buildings as possible. It may be too expensive to consolidate existing users into fewer buildings. However, new users would be required to co-locate into existing facilities unless technical parameters are prohibitive, or equitable agreements cannot be reached.

Alternative 4, followed by Alternative 3, is the preferred way to accommodate new users on the site. Ideally, new facilities should not be approved for construction until capacity is reached in existing facilities. Existing ROW grant holders would be encouraged to accommodate new users/capabilities in existing facilities. However, since ROW grants have not directed multiple-use facilities in the past, this arrangement is not likely to become directive in nature for current grant holders. Future use management criteria and design parameters will establish the development guidelines that provide management direction and meet the various needs of the users. ROW grant stipulations will be developed with the advice of the Technical Committee to outline the specific details for construction and site management. Normally, such review and advice should not require more than 30 days to complete.

In the case of Alternative 3, the preparation of a specific site development plan will be a joint effort between the BLM and the applicant. The BLM will be responsible for providing planning criteria that includes guidance for site management, land use, and user selection decisions. Design parameters for aesthetic and architectural standards will also be established by the BLM. The applicant will be responsible for the electronic aspects of the site layout and building design, as well as the structural equipment and actual design of the building and tower(s). Within the framework of the planning criteria and design parameters, the applicant will submit a proposal to the BLM for review. The User's Association, through the Technical Committee, will be provided an opportunity to review and comment upon all applications prior to final action by BLM. Normally, such review and comment should not require more than 30 days to complete.

C. Criteria providing guidance for site management, land use, and user authorization decisions

1. ROW grant holders shall become members of the User's Association by execution of the Constitution and Bylaws.

2. BLM recognizes that the Black Mountain (Arden) Communication Site is an excellent location for electronic communication purposes. The site shall continue to be developed and managed,

while protecting the rights of each existing user from interference caused by the activities of new applicants.

3. The recommendation for an intermodulation study will come from the Technical Committee with an accompanying analysis to support the requirement.

4. The Authorized Officer of BLM may require future applicants to provide a surety bond or other security to guarantee resolution of any interference problems created by the new users. Resolution may include the relocation of the new user's facility at its own expense, where interference problems cannot otherwise be resolved.

5. Existing site users will be provided an opportunity to review and comment upon any application for new communication site use, including amendment of existing grants, prior to the final action by BLM.

6. Applications for new communication site use will be rejected by BLM when the available evidence indicates that significant irremediable interference that is destructive to existing users of the site would probably result, or the proposed development does not conform to this plan. The mere possibility that interference may occur is not sufficient grounds to deny an application. An exception will be where interference is acceptable under FCC rules pertaining to primary and secondary service.

7. In general, existing users have the right of non-interference from new users. However, the BLM will not recognize interference complaints from users who do not themselves meet minimum site technical standards established by this management plan, or those who have not executed the Constitution and Bylaws of the User's Association.

8. Maximizing the number of installations per building and minimizing the number of buildings, antennas, and towers will be required to the extent possible. Whenever technical parameters allow, new site users will be required to co-locate in existing buildings and on existing towers. In general, new multiple-user buildings and towers will be authorized only when existing facilities are full, with approval subject to land availability and technical compatibility with existing users.

9. Requests for single-user or limited occupancy facilities will be considered on a case-by-case basis. Before approval, the applicant must demonstrate to the satisfaction of the Authorized Officer that it is not feasible to co-locate in an existing multiple-user building or to construct a new facility capable of housing multiple users. Unwillingness to co-locate in an existing multi-user facility when it can accommodate the applicant's needs shall be sufficient cause for rejection of an application.

10. All existing users will be encouraged to comply with the Communication Site Technical Standards contained in the User's Association Constitution and Bylaws and implementation of

this site management plan. It is of mutual benefit for all site users to join the association so they will be represented and have a vote in all proceedings. Compliance with these standards will be required of all new site users. Existing users will be required to comply at the time of grant renewal, amendment, assignment, or when necessary to eliminate specific interference problems.

11. It is the BLM's intent to grant to itself a ROW reservation for the access road. The road will be identified as a BLM road to provide access to the communication site. However, the BLM will not assume financial responsibility for maintaining the access road.

12. Users not participating in the cooperative agreement will be encouraged to contribute a pro rata share of fees for maintenance of joint use areas.

13. Site safety considerations:

    a. Ice loading on, and falling from towers.

    b. Unmarked obstructions, such as existing guy wires, gate cables, or other obstacles which are not clearly evident to the unwary.

    c. Electromagnetic radiation: If high-power facilities such as broadcast television and FM stations are present, no user may allow personnel to work in, or visit areas which exceed the American National Standards Institute (ANSI) standard of exposure to 1 milliwatt/centimeter squared, or as amended.

    d. Antennas should be mounted on separate support towers and not on buildings.

VI. DESIGN AND CONSTRUCTION PARAMETERS

The following design/construction parameters provide direction for the physical design and development of communication facilities. Detailed requirements for each specific facility to be authorized will be established through ROW stipulations, which will include most of the provisions listed below. Additional site specific stipulations may be developed as needed on a case-by-case basis for proposed facilities.

A. General

1. The design and location of all facilities shall be approved by the Authorized Officer prior to commencement of construction.

2. All structures shall be designed, constructed, and landscaped to complement the natural site features and minimize visual impacts. Architectural design should consider low profile structures

of a suitable color to blend with the landform. Towers and antenna should be of a suitable color or of non-reflective material.

3. Applications for use of the site must provide sufficient data so that the visual compatibility of the proposed structures, landform, or vegetative changes may be evaluated.

4. Facilities should be designed and planned for multiple users, including additions to the building and additional antenna supports, as may be required by the original user or subsequent applicants.

5. Facilities not directly related to telecommunications will not be permitted.

6. Fences not directly related to the security of the telecommunications equipment or structures shall not be permitted. Any fencing material shall be approved, prior to installation, by the Authorized Officer. However, as a minimum, all fencing fabric shall be galvanized and should be color blended to match the building and surrounding environment.

7. Signs necessary for protection of public safety may be installed with the prior written approval of the Authorized Officer.

8. A sign containing identification will be installed on each facility. Information contained on the sign will include, as a minimum, the following: name of ROW grant holder, BLM ROW grant number (e.g., N-1234), and the name and telephone number of the person responsible for the facility. The sign will be large enough to read from outside security fencing, if present.

9. All facilities shall be maintained in a neat, orderly fashion and reflect adherence to these design requirements.

10. All structures must meet the requirements of the latest codes governing design of facilities as outlined in the Uniform Building Code.

B. Buildings

1. Buildings should be designed to accommodate various types of users and include provisions for separate vaults, if required for security or collocation opportunities.

2. Exterior surfaces will be painted with flat (non-glossy) paint or stained in a color approved by the Authorized Officer prior to use.

3. All buildings shall be uniform in shape (e.g., flat or shed roofs). The maximum height allowed is 12 feet.

4. Adequate ventilation shall be provided for the protection of personnel and to prevent the accumulation of explosive gases and stagnant heated air. Where feasible, maximum protection against dust is recommended. If forced air ventilation systems are used, they shall be equipped with removable filters for servicing.

5. All structures will be of fiberglass, stone, concrete, aggregated reinforced sections, insulated steel, or concrete block. Final construction must be vermin proof and approved by the Authorized Officer and conform to the Uniform Building Code, as amended.

C. Antennas, Microwave Dishes, and Support Structures.

1. Antenna support structures should be designed to accommodate all anticipated antennas in the facility. Where appropriate, microwave supports should be designed as a feature of the building.

2. To the extent possible, antenna support structures should be located so they visually tie in with other site features and are clustered in one area.

3. Antenna support structures which are 100 feet or less in height will not require BLM approval of the height. Approval of structures in excess of 200 feet tall will be considered on a case-by-case basis. When adequate justification is provided consistent with this management plan, greater heights will follow FAA regulations and must conform to these standards.

4. Self-supporting antenna structures are required. No further guyed towers will be approved. Antenna support structures shall be latticed, hot dipped galvanized steel. They shall reflect uniformity of design and materials for the entire site.

5. All antenna supports should be constructed and maintained in a neat and safe condition in accordance with good engineering practices as accepted by industry and applicable laws. Antenna supports should conform to the installation specifications of the tower manufacturer. Any variance from these standards will be allowed only to the extent required because of local terrain or obstructions at the site, and all variances should conform to good engineering practice.

6. All microwave dishes and covers deemed by the Authorized Officer to be nonharmonious with the surrounding environment will be painted an approved color.

7. Users will maintain separation of antennas vertically and horizontally to prevent transmitters from broadcasting directly into receivers.

8. Antennas and supporting structures will be bonded and grounded for lightning in accordance with the National Electrical Safety Code or as required for each specific situation, whichever is more protective.

D. Electrical/Electronic

1. All electrical equipment, facilities, and their installation shall conform to the latest National Electrical Safety Code and applicable laws and regulations.

2. Installations shall include an effective lightning ground in accordance with the "cone of protection" theory. All electrical outlets shall be of the three conductor grounding receptacle type. All electrical or electronic equipment cabinets shall be properly connected to the system ground. Structures shall be designed for maximum lightning protection through bonding and a fully buried grounding system. In all cases, the Electronic Industries Association standards will apply.

3. Standards and specifications for raceways, switching, grounding, wiring methods, and materials shall be the equivalent of, or greater than, those issued by the National Fire Protection Association in its latest National Electrical Code.

4. Combining electronic features is required where technically feasible to minimize apparent overall antenna mass and height.

E. Roads, Parking Areas, Disturbed Areas

1. All roads and parking areas will be constructed and maintained in accordance with standards identified in BLM Manual H-2801-1.

2. Wherever possible, topsoil shall be conserved during excavation, stockpiled, and replaced as cover on disturbed areas to facilitate regrowth of vegetation.

3. If applicable, all disturbed areas should be seeded or planted with suitable natural vegetation as approved by BLM.

4. All waste material resulting from construction or use of the site must be removed from the site to a suitable landfill as soon as it becomes waste.

F. Interference

1. Physical and electromagnetic interference created by addition of new equipment or modification of existing equipment will be mitigated by the owner of that equipment.

2. If interference is not mitigated after notice, the BLM will cause the equipment to be shut down until appropriate repairs are made. Failure to mitigate interference could be cause for suspension or termination of the ROW grant.

G. Stipulations

1. The Holder shall operate within the parameters of this Site Management Plan, all regulations governing ROWs contained in 43 CFR 2800, and all special terms and conditions attached to the grant.

2. No signs or advertising devices shall be placed on the premises or on adjacent public lands, except those posted by, or at the direction of, the Authorized Officer.
3. The Holder shall not allow the operation of any electronic transmitting equipment in the building or on the site unless and until the user has obtained the proper construction permit or license from the FCC or IRAC.

4. The Holder agrees that the right is reserved to the BLM to declare, with cause, the terms of a grant terminated in whole or in part and to revest in the United States possession of the property herein during the term of a grant.

5. The Holder agrees that in the event of a violation or failure to comply with the stipulations imposed herein, the United States may seek judicial enforcement of all legal requirements, including cancellation of the grant.

6. Each electronic-type station authorized by a grant shall be operated only in conformity with the requirements of the FCC, or in the case of Federal government installation operations, in accordance with IRAC agreements. The licensee's grant(s) shall become null and void if the respective FCC or IRAC authority for operation of the installation expires, is revoked, or otherwise terminated. In the case of a multi-use facility, should an FCC or IRAC permit become null and void, it will be the responsibility of the primary grant holder to promptly terminate the user's occupancy of the facility.

7. The Holder shall furnish the Authorized Officer with a copy of the currently valid FCC license or IRAC radio frequency assignment, as the case may be, within 10 days after issuance of the license or assignment of the frequency.

8. There will be at least one scheduled inspection annually to confirm that site standards are being complied with. The Authorized Officer shall have the right to inspect the site jointly with the Holder or his/her representative at any reasonable time to insure compliance with the terms, conditions, and stipulations of the ROW grant. If the Holder refuses to join the inspection, the BLM will inspect the facility by itself or with the Technical Committee for the User's Association. The Holder agrees that the right is reserved to the BLM to inspect the facility without notice to the Holder if the BLM believes illegal activity is occurring.

9. BLM personnel will be granted access into the building upon request, to inspect the building and facilities for cleanliness, safety features (including compliance with safety codes), general appearance and compliance with the terms of the grant.

10. The BLM may suspend or terminate a ROW grant at any time for violation of any one or more of these stipulations; for violation of any one or more of the regulations contained in 43 CFR 2800; for the failure to comply with any county, state, or federal laws applicable to the facilities for which the ROW is approved; or if the ROW is not being used for the authorized purpose. BLM shall comply with the procedures outlined in the pertinent federal regulations, 43 CFR 2800.3 or 43 CFR 2803.4, as amended, in suspending or terminating a ROW grant.

11. The BLM may suspend or terminate a ROW grant for any violation of the building, road and structure maintenance conditions of the grant. BLM shall comply with the procedures outlined in the pertinent federal regulations, 43 CFR 2800.3, or 43 CFR 3802.4, as amended, in suspending or terminating a ROW grant.

12. The Holder has the right to remove equipment which is causing troublesome interference to other users of the site. The right to remove can only be for the installations constructed and operated by the Holder.

13. Utility and service facilities constructed by the Holder shall be available for use by the United States for the construction and operation of electronic facilities installed by the United States without any contribution for construction costs of such facilities. Such facilities include, but are not limited to, power and phone lines, roads, and fences within the reasonable capacity of such facilities.

14. The United States agrees to pay the fair market rental, as determined by a mutually acceptable appraiser, for any use made of buildings, antenna towers, or other structures belonging to the Holder.

15. The Holder shall furnish the Authorized Officer a current price schedule for all charges for services provided by said Holder to other users, both to such other users using the equipment owned by the Holder, and other users using their own equipment located within the Holder's building. If fees are charged, the primary holder shall make a reasonable, uniform charge for space, services and equipment, to all users of the facility. A facility manager may not deny access to another user, except for reason of lack of capacity or interference.

16. Primary and subsequent holders shall be fully responsible to the BLM for the payment of fair market rental for use of the site. "Fair Market Value" of a communication site ROW is the amount in cash, or on terms reasonably equivalent to cash, for which in all probability the right to use the site would be granted by a knowledgeable owner willing but not obligated to grant to a

knowledgeable user who desired but is not obligated to so use. Guidance for determining the Fair Market Value of a ROW is contained in the Rent Schedule for Communication Uses.

17. Before modification of previously authorized facilities will be approved by the BLM (where an FCC construction permit was required), copies of any amended FCC construction permit or license, together with corrected diagrams, must be filed with the Authorized Officer. In most cases, an amendment to the grant holder's ROW will be required before modifications are authorized to proceed.

18. Any and all subsequent changes to the installation, including antenna systems, shall require advance notification, including suitable drawings of the site, and written approval of the Authorized Officer.

19. The Holder shall not install, nor allow the installation of any third party's electronic equipment in the Holders building, or attachment to the Holder's antenna support structures, without requiring the third party to comply completely with the requirements of these stipulations. Failure to comply may result in termination of the Holder's grant.

20. Any and all subsequent changes in, or additions to, the specified operating frequencies, type of emissions, band widths, RF power outputs, class of service, type of antenna, or the named FCC licenses, will require advance notification to, and written approval from, the Authorized Officer.

21. The Holder must construct any improvements to the existing building according to plans approved in advance by the Authorized Officer. Plans for any future modification or construction of improvements on the site must be submitted to the Authorized Officer of the BLM for written approval before such changes can be made.

22. The Holder shall cooperate with the FCC and/or IRAC on all applications, so as to avoid licensing of stations that will cause interference with other users of the site. The Holder shall also cooperate with the FCC and/or IRAC to eliminate interference caused by users. If the interference continues, the Holder shall cooperate with the licensing authority in any action to suspend a license.

23. The Holder will at all times operate the electronic type equipment in such a manner as not to cause interference with electronic type operations of the BLM or other existing communication facilities in the area. If such interference results from the Holder's operations, the Holder will promptly, at its own expense and without cost to the United States, modify its equipment and operations, or shut it down if necessary, to eliminate or reduce the interference to the satisfaction of the BLM.

24. All subsequent users of the communication site will be required to obtain appropriate authorization. This can take the form of a new ROW grant from the BLM, or, if the new user is

to collocate in an existing facility, a letter is required from the existing user to authorize such occupancy.

25. The BLM may immediately suspend the operation of a facility if the Holder of a ROW grant to operate the facility fails to begin activity to eliminate interference to another user within three days of receipt of written notice from BLM, pursuant to 43 CFR 2803.4, as amended. The BLM will notify the Holder of the interference problem and state that the Holder has three days to begin activity to eliminate the interference problem, and that if the Holder fails to begin such activity within three days, BLM will immediately suspend operation of the facility.

VII. Procedures to Ensure Compliance with Grant Stipulations and Terms of the Site Management Plan

A. User's Association Meetings

The Black Mountain (Arden) Communication Site User's Association will hold at least one annual meeting. A compliance inspection will follow, including physical access into all buildings, within two days of the annual meeting.

B. Compliance Inspections

The frequency of unscheduled compliance inspections, including physical access into buildings, will be at the call of the BLM as desired. Procedures BLM will use to inform the Holders of the results of compliance inspections will be by letters to each site user with a copy of the Technical Committee's recommendations describing only their deficiencies.

C. Audits

Procedures for making financial audits of the User's Association's books will be developed by the Financial Committee and adopted by the Association.

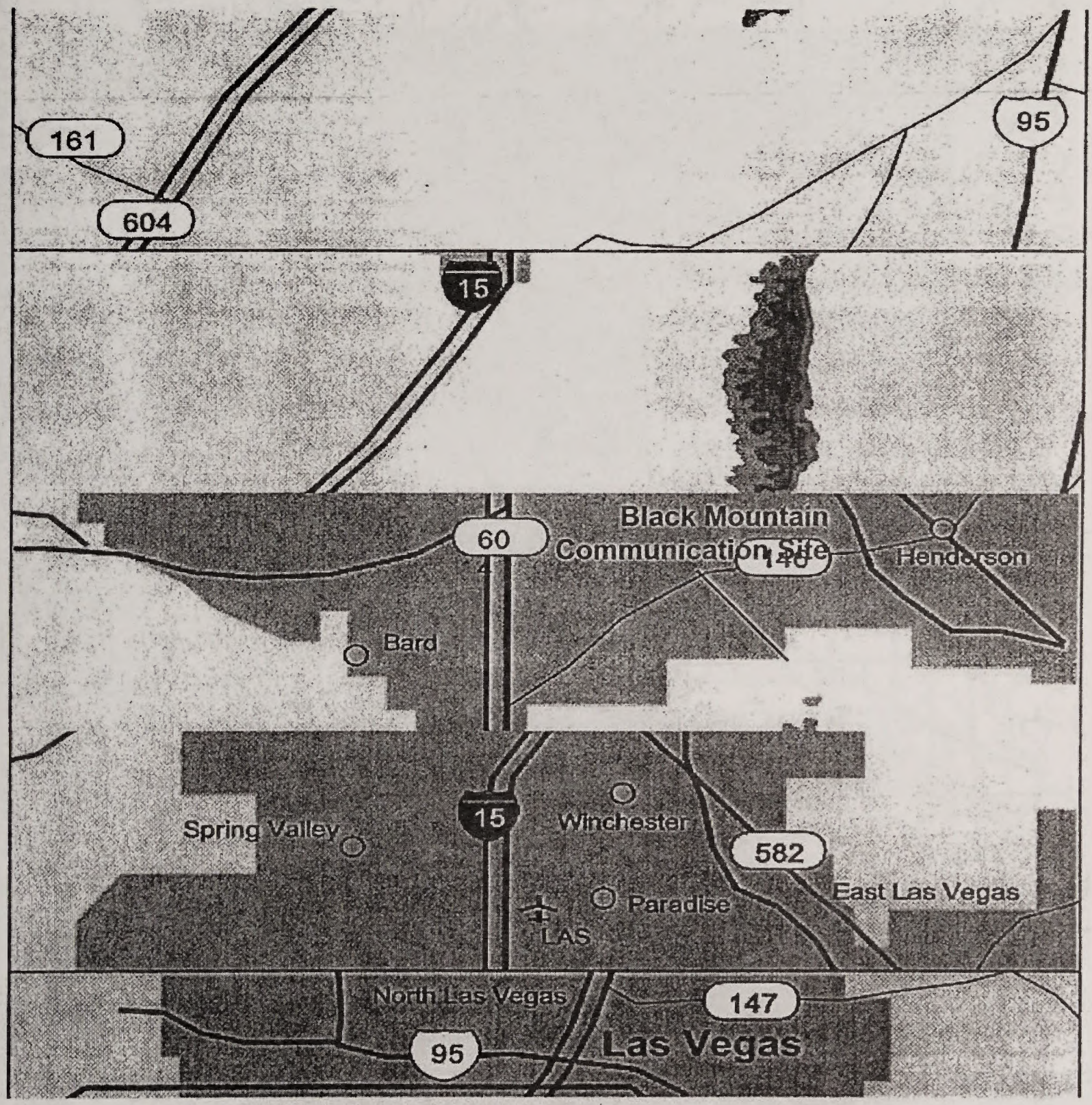
VIII. MAINTENANCE AND UPDATE OF THE SITE MANAGEMENT PLAN

The information in Appendices A, B and C must be kept current as an existing user leaves the site or a new user occupies the site. The plan is to be reviewed at least every five years and updated, if appropriate, to reflect changed circumstances. All site historical data should be retained in the file to chart evolution of development on the mountain.

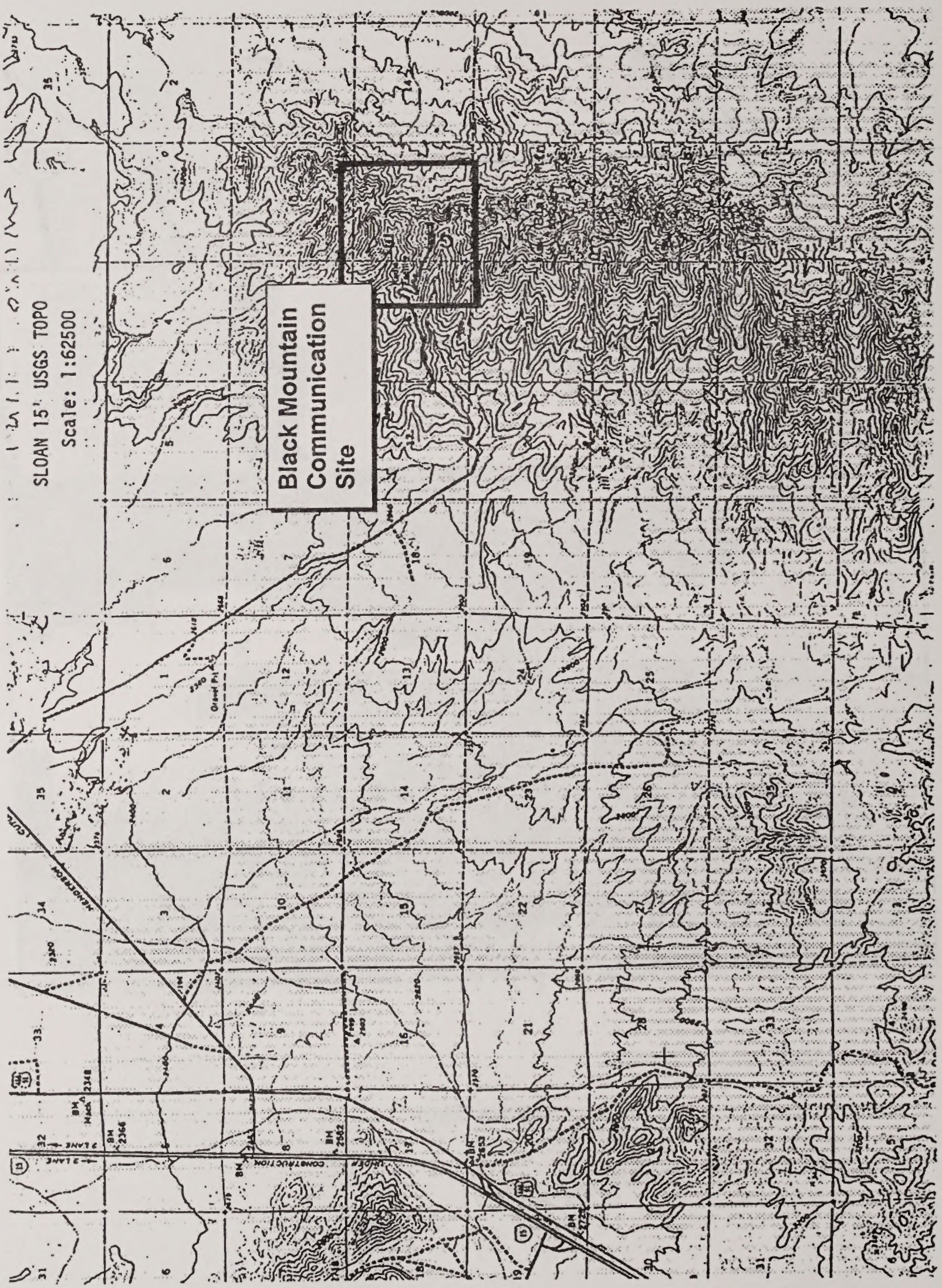
Appendix A

Black Mountain (Arden) Communication Site

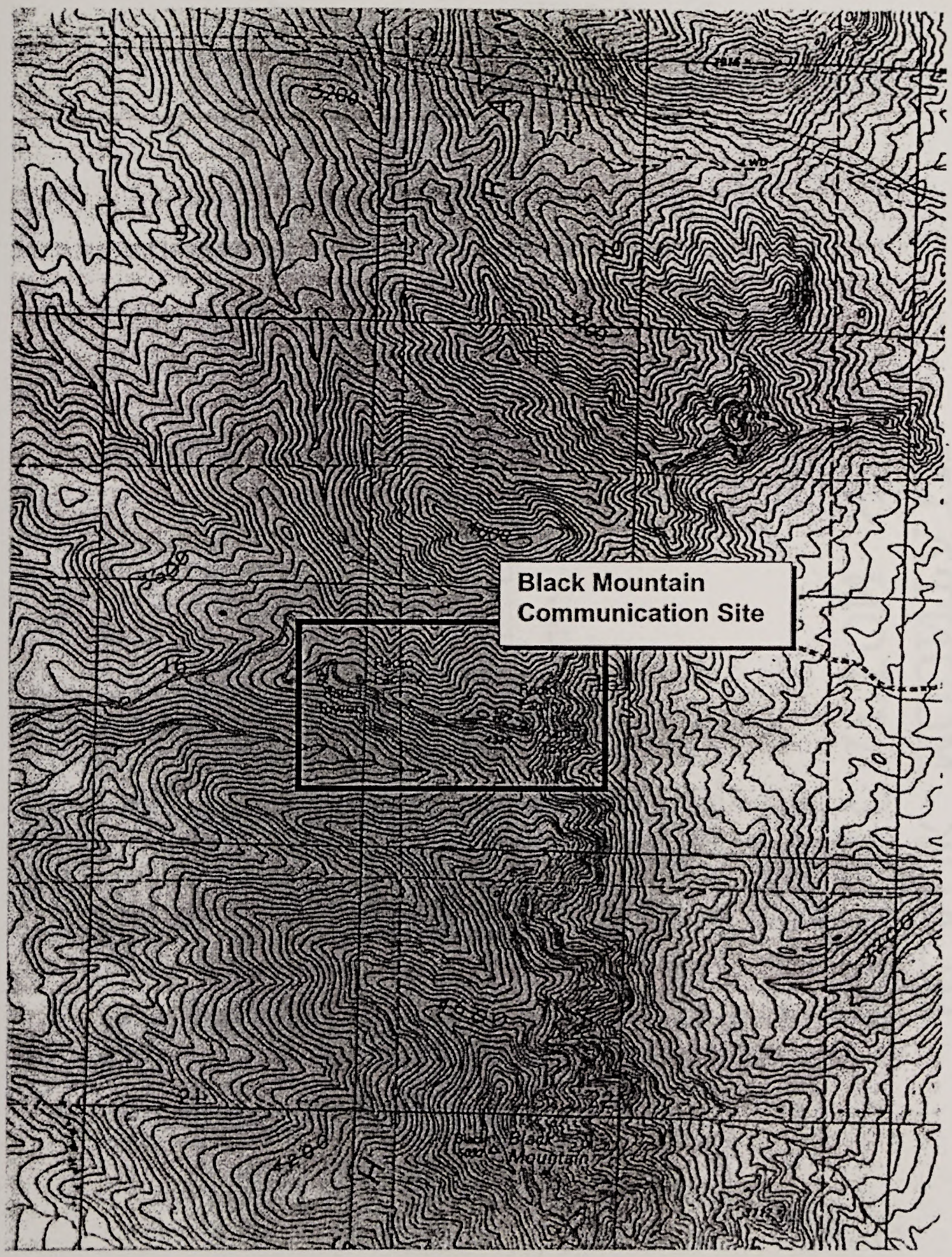
Site Maps



Vicinity Map

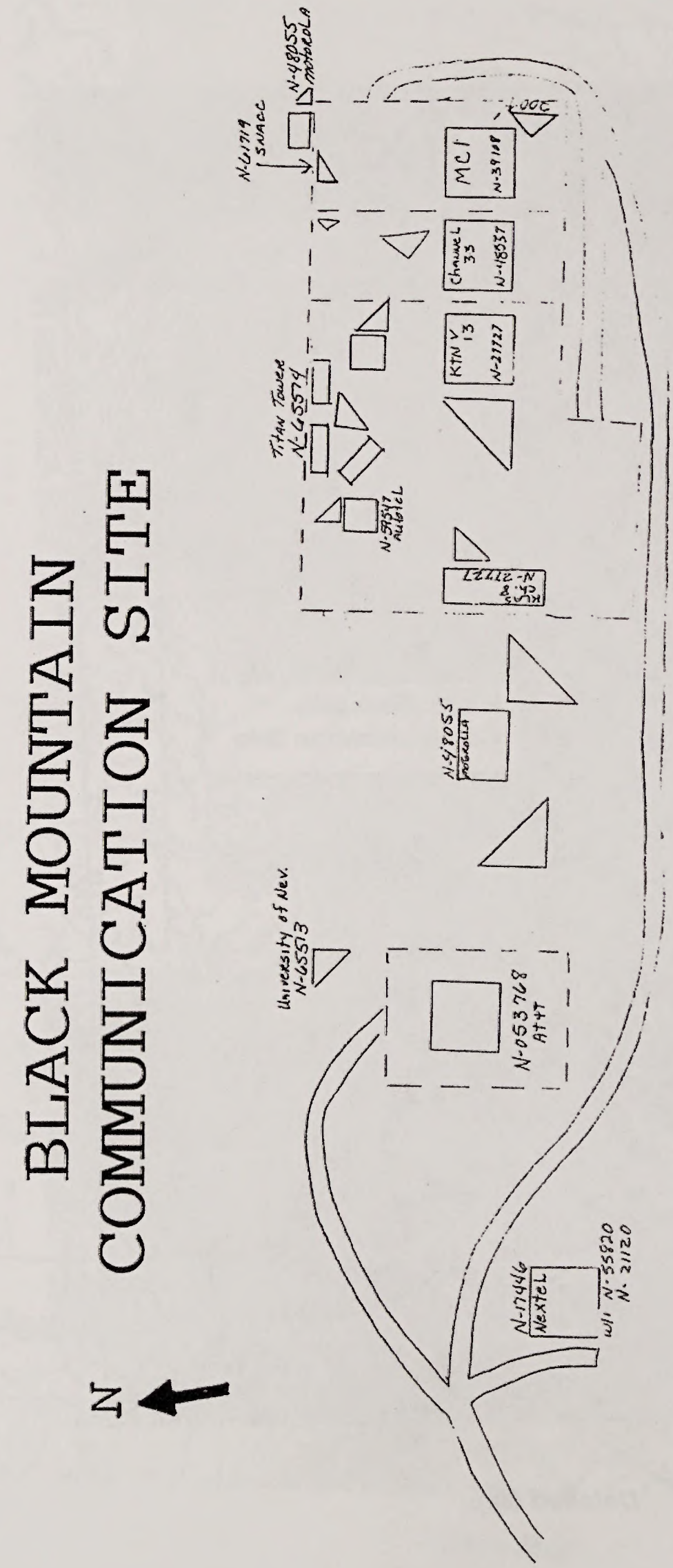

Black Mountain Communication Site
SLOAN 15' USGS TOPO
Scale: 1:62500

Area Map



Detailed Map

BLACK MOUNTAIN COMMUNICATION SITE



MOUNT DIABLO MERIDIAN, NEVADA

Appendix B

Black Mountain (Arden) Communication Site

User's Association

Constitution and Bylaws

Black Mountain (Arden) Communication Site Constitution

ARTICLE I

SECTION I: Introduction

The name of this Association shall be the Black Mountain (Arden) Communication Site User's Association. It is organized for the cooperative protection from physical and electromagnetic interference to existing radio facilities, ground and air access, protection of property, and development of the area for maximum compatible use commensurate with the adequate functioning of existing facilities, in accordance with pertinent regulations of the Bureau of Land Management.

The Association is an advisory, nonprofit association formed solely for the purposes hereinafter set forth and will not directly or indirectly, as an association, engage in any business whatsoever, for profit or otherwise. The signatories to this agreement are in no way deemed to be a partnership, joint venture, or association except for the purpose expressly herein set forth.

ARTICLE II

SECTION 1: Purpose

The purpose of this Association is to form an organization of present and future radioelectronic users under grant of ROW on Black Mountain (Arden) within the Las Vegas Field Office, Las Vegas District, BLM.

SECTION 2: Objectives

The Black Mountain (Arden) Communication Site, which is located in T. 23 S., R. 62 E., MDM, Nevada, Sections 15 & 16, for the purposes of this agreement, shall be defined as the area consisting of the present development on the peak and associated existing disturbed areas. The object is to restrict additional site users to currently developed areas, if possible, and to properly manage future use and development of this communication site to minimize physical and electromagnetic interference for authorized users of it.

The objectives of the Association are:

1. To advise the BLM's Authorized Officer on measures to manage the site to protect the rights and interests of its members, including protection from adverse physical and electromagnetic effects on personnel.

2. To investigate allegations of physical and/or electromagnetic interference and recommend measures for correction.

3. To review applications from prospective users and recommend to the BLM's Authorized Officer measures which adequately protect existing users' operations. A report will be made within 20 days of the recommended course of action with supporting rationale as each situation may require.

4. To recommend cooperative arrangements for financing the maintenance and upkeep of existing improvements, such as roads and other developments constructed for the common benefit of the site users.

5. To recommend a schedule of fees that will be applicable to all members of the Association for the maintenance of common user improvements benefiting all ROW holders.

ARTICLE III

SECTION 1: Membership

The Association will consist of the ROW grant holders on the Black Mountain (Arden) Communication Site, or a representative for each holder as designated in writing to exercise its voting privilege, and a representative of the BLM. A ROW holder is defined as an individual, association, corporation, or governmental entity holding a BLM ROW grant or reservation for a communication facility. Notices delivered to the designated representative shall be considered notice to the user itself.

Each new ROW holder on the Black Mountain (Arden) Communication Site will be required to become a member of the Association through stipulations included in its ROW grant from the BLM.

SECTION 2: Board of Directors

The Association shall select a board consisting of a chairperson, vice-chairperson, secretary/treasurer, site data base manager, and chairperson of supporting committees as required, from the ROW holders, who will hold office for two years or until their successors are selected. Selection of officers shall be determined by the drawing of lots. Members so selected shall then serve their terms on a rotational basis subject to their right of refusal to so serve. New users will be added to the roster to serve as officers in the group in the order they receive authorization to locate on the site. The first name so drawn will serve as president and the other offices will be so filled in descending order as the names are drawn. As vacancies occur, the next name on the list will occupy that office. If a vacancy occurs due to turnover in a holder's internal organization, the authorized replacement may serve out the remainder of the unexpired term.

For the purposes of this document, the term "user group" and "user" will be used interchangeably to refer to those ROW grant holders who have entered into this Association and who have been authorized to occupy the Black Mountain (Arden) Communication Site by receipt of a ROW grant or ROW reservation issued by the BLM.

SECTION 3: Action for Recommendations

All recommendations of the Association will be forwarded to the BLM's Authorized Officer for action.

SECTION 4: Member Standing

Members shall be in good standing when all Association fees and assessments are paid and when they are in compliance with the Association's constitution and bylaws.

ARTICLE IV

SECTION 1: Internal Exclusions

Each party hereto shall, during the existence of this Agreement and thereafter, severally release and indemnify each other from and against all liability, cost, expense and valid claims for injuries or deaths of persons and loss or damage to property arising out of use of the access road or electronic site by such party or the employees, agents, guests, or assigns of such party.

SECTION 2: Government Exclusions

All users shall agree to indemnify and hold harmless the United States, its successors and assigns, its officers, agents and employees, from any and all damages and claims for damages of every description of kind whatsoever, which may result from the exercise of any of the rights reserved herein.

Black Mountain (Arden) Communication Site

User's Association Bylaws

ARTICLE I

SECTION I: Chairperson

Chairperson's Duties:

1. Arrange for and preside at meetings of the Association.
2. Represent the Association in public meetings and meetings with the BLM.
3. Supervise the work of the other officers of the Association to assure coordination of efforts and on time completion of necessary tasks.
4. Approve and sign all Association expenditures of Association funds.

SECTION 2: Vice-Chairperson

Vice-Chairperson's Duties:

1. Assume any and all of the Chairperson's duties, given appropriate notice, if the Chairperson is unable to fulfill them.
2. Monitor site inspections to assure fair and impartial results.
3. Coordinate and direct committee work as needed.
4. Promote cooperation among site users.

SECTION 3: Secretary/Treasurer

Secretary/Treasurer's Duties:

1. Prepare outgoing Association correspondence and present it to the Chairperson for approval and distribution.
2. Disseminate incoming correspondence to directly affexed users.
3. Record minutes at meetints, keep members apprised of meetings, agendas, and planned activities which affect the Association, including Meetings.
4. Maintain all Association files, records, and accounts to keep them current and accurate. This will include sending notices to members of assessment payments due and making deposits into the appropriate account so that checks may be written to cover expenses of the Association. All Association documents shall be open and available for inspection by any member including the BLM.

5. Prepare all checks and payments of the Association and present them to the Chairperson for approval and signature. Maintain a record of all transactions, including date, amount received or disbursed, from or to whom, and for what purpose.

SECTION 4: Data Base Manager

Site Data Base Manager's Duties:

1. Develop and maintain a base of the technical datum which concern the users of the Black Mountain (Arden) Communication Site. This data base could be expected to include such things as receiver and transmitter frequencies, ERP, a list of users, call signs, and the detailed site map. Other information may also be included as the need is identified by the association.

2. Preparation of and distribution to the Association members of a current listing of relevant site data on an annual basis. A convenient time for the distribution of this listing would be at the annual meeting or at a scheduled special meeting.

ARTICLE II

SECTION 1: Financial committee

The Financial Committee shall be a standing committee consisting of at least two Association members elected by the membership. The committee shall set forth procedures for determining a proper and fair sharing of cost and expense of use, maintenance and reconstruction needs of the access road and common use facilities directly related to use of the site, such as road surface and foundation conditions, bridges, culverts, drains, and the like to maintain the site and related facilities in a usable condition.

The committee is also responsible for maintenance and upkeep of gates, locks, helicopter landing area, and other common user areas as may be appropriate for use of the site. The committee shall audit the Treasurer's financial records just prior to the annual meeting, or on special request, and present a report of its findings to the Association. The committee shall be responsible for preparation of the Association's annual budget. When the Association determines that road or site conditions warrant repair, the committee shall research the work, exploring all cost, complexity and contracting options, contract the work to be done and inspect it for acceptance upon completion.

SECTION 2: Technical Committee

The Technical Committee shall be a standing committee which prepares and maintains the Technical Guidelines with which all users of the site must ultimately conform. It shall consist of at least three members of the Association from the following areas of expertise, as appropriate: 2-way, microwave, TV and AM/FM. The committee shall select a chairperson, who shall represent the association in technical matters. The committee shall also help the BLM conduct site inspections and assist in preparation of a report of the findings to be presented to the Association. It shall perform other duties of a technical nature as deemed necessary to support the Association, such as evaluating the compatibility of additions or modifications to the site and making recommendations to the BLM concerning acceptance or rejection.

ARTICLE III

SECTION 1: Interests

ROW holders' granted rights for common use facilities, such as access road and helicopter landing area, shall relinquish those rights after the BLM grants to itself a right-of-way reservation for the common use facilities. However, the BLM will not unilaterally assume financial responsibility for the common use areas. Financial responsibility will be maintained jointly by all the users through the Association.

SECTION 2: Assessments

An annual assessment shall be made upon all members to provide funds for operational expenses of the Association. Association expenses are defined to include maintenance of common user facilities, such as the access road, as well as the incidental expenses of operation, such as postal fees and cost of distributing notices of meetings and agendas. Special assessments may be made and apportioned as approved by the membership to cover unanticipated circumstances which may arise.

SECTION 3: Maximum and Actual Assessment

The beginning assessment shall be $100.00. The actual annual assessment shall be based on recommendations made by the Treasurer and Financial Committee and approved by a simple majority of the members present at the meeting to vote. See Appendix C for a listing of the users of the site as of the date of this agreement.

SECTION 4: Proration, Late Payment Penalties, Enforcement and Collection

1. Proration of Rental

Prorated fees will be paid in advance for a 12-month period. The fiscal year of the Association will begin October 1 of each year and end September 30 of the following year. Those grantees receiving a BLM ROW after the beginning of the fiscal year will pay a prorated fee. Grants issued prior to the 15th of the month will pay for the full month. Proration will be based on the following factors:

12 Months	1.000	6 Months	0.5000
11 Months	0.9167	5 Months	0.4167
10 Months	0.8333	4 Months	0.3333
9 Months	0.7500	3 Months	0.2500
8 Months	0.6667	2 Months	0.1667
7 Months	0.5833	1 Months	0.0833

All amounts will be rounded to the nearest dollar.

2. Late Payment Penalties

Guarantees will be allowed 90 days after the assessment is determined to submit payment of fees. Fees not paid within the 90 days will be charged a late fee commensurate with the Nevada State legal interest rate.

3. Enforcement

Failure to pay the annual assessment may result in cancellation of the holder's rightof-way grant for failure to comply with its terms and conditions.

4. Collection

Collection of assessments, including custody and disbursement of the money, will be made by the Secretary/Treasurer. Billings for assessments will be sent during January of each year or will be due for part of a year when the right-of-way grant is issued.

ARTICLE IV

SECTION 1: Technical Standards

All Users on the site will adhere to the following minimum technical standards. Adherence to these standards will minimize physical and electromagnetic interference, thus providing for improved compatibility of all users.

A. Required Standards:

1. All radio-electronic type equipment, including associated cables, wiring and antenna systems, shall be installed and maintained in a clean, neat and orderly manner, and be permanently secured. All such installations shall be both electrically and mechanically sound.

2. Jacketed heliax type transmission line shall be used. Unjacketed transmission line of any type is prohibited.

3. Transmission lines shall be secured to the tower following manufacturer's specifications. Black nylon tie wraps, insulated wire wrap, or approved insulated cable clamps must be used. Wrap lock is prohibited.

4. Double shielded, double braided or heliax type coaxial cable is required from radio equipment through isolators, band pass devices, and duplexers, etc., to heliax-type transmission line. No RG-8 type cable will be allowed.

5. All radio equipment shall be housed in metal racks or cabinets and properly grounded.

6. Each transmitter shall be externally identified with a copy of the current FCC license, or IRAC authorization, name and telephone number of the person responsible for the equipment, the receiver frequency, transmit/receive tone frequencies, and transmit frequency and power.

7. All radios shall be TYPE ACCEPTED for the intended application or conform to Part 5 "Standards" of the NTIA Manual of Regulations and Procedures for Federal Radio Frequency Management.

8. The antenna shall not be indiscriminately moved after initial mounting and tests.

9. When radio interference occurs, notch filters, crystal filters, and dual ferrite isolators and/or band pass devices may be required. The need for additional filtering equipment will be determined on a case-by-case basis.

10. All receivers must comply with Parts 2 and 15 of the current FCC rules or conform to Part 5 "Standards" of the NTIA Manual of Regulations and Procedures for Federal Radio Frequency Management.

11. All systems shall provide a local speaker and switch on each receiver to facilitate checking for interference. Microwave, TV and FM translators or point-to-point systems are excepted.

12. All RF transmission line systems shall be engineered, procured, and installed with the intention of minimizing any effects upon the ambient RF noise floor environment.

13. All antenna cables entering and leaving the building shall carry like identification tags.

14. Receivers will not be regulated; however, all receivers experiencing interference may need to be equipped with cavities or crystal filters.

15. Power output of any system on a low-power portion of the site, if installed, shall not exceed 300 watts Effective Radiated Power (ERP). Transmitter isolators shall have a minimum of 50db of isolation in the output to the antenna. For the applicant that desires to exceed the 300 watt limitation, additional information may be requested. Such information may consist of a complete intermod study, field strength test, etc. The applicant may also be requested to make a formal presentation to the Users Association, Technical Committee, and the BLM before the application will be approved. If the application for a transmitter exceeding 300 watts ERP is approved and this transmitter causes interference to another user that cannot be resolved by any known technical means, the new user will cease operation within three days of notice by BLM. Electromagnetic interference is defined as any radio frequency associated interaction that impedes or hinders another service. In the event that the interference problem cannot be resolved, the new station will not be permitted to resume transmitting.

16. System design must provide adequate isolation between antennas.

17. If harmful spurious emissions and harmonic content are shown to be causing interference, the responsible user shall be required to take additional measures to eliminate the interference.

18. Each microwave and point-to-point system change or addition will be addressed individually by the Technical Committee to provide advice to the BLM's Authorized Officer to take appropriate action.

19. Any miscellaneous equipment that causes harmful interference shall not be used, or if installed, must be removed.

20. Systems must be grounded in a manner that is compatible with existing user's grounding so interference will not be compounded.

21. All antennas and signal transmission media must be terminated with their own characteristic impedance when not in use.

22. The noise floor contribution of any new equipment or changes to existing equipment must not cause the total noise floor to technically increase beyond a significant amount as determined by the Technical Committee.

23. Housekeeping has environmental, visual, aesthetic and electromagnetic compatibility impact. Debris which is permitted to remain adrift raises the noise floor for all users and gives rise to

intermodulation potential which often defies identification. Therefore, all debris shall be cleaned up immediately and will not be allowed to accumulate on the site.

24. Transmitters operating on this site must also have a ferrite isolator with a minimum of 50db rejection in the reverse direction. The isolator should be installed between the transmitter and the cavity. Existing users on this site must be in compliance with this requirement within one year of the execution of this agreement. Any new users on the site, after the inception of this agreement, shall comply with this requirement upon the initial installation of its equipment and shall continue to comply thereafter.

25. Notch type duplexers should be preceded by a band pass cavity.

26. A low pass filter or a band pass cavity should be between the isolator and the antenna.

27. Guy wires, bonding across clevises, brackets, etc., should be insulated. Loose wire or metal objects must not be left on towers.

28. A band pass cavity should be placed in the feedline to receivers.

29. Type "N" connectors are preferred over other type connectors. Do not mix coax connectors with adapters.

B. Recommended Standards:

The following standards are recommended for new and existing installations. Should it become necessary to eliminate interference, site users will be required to comply with these standards.

1. Transmitters operating on this site must have a band pass cavity or other devices that provide sufficient separation to shield other operating equipment should it become necessary.

SECTION 2: Annual Inspection and Enforcement

A. The Technical Committee and the BLM shall jointly conduct at least one annual inspection of each facility on the site. This inspection will verify:

Compliance with technical standards.

Structural integrity.

Electromagnetic compatibility.

General safety.

As-built plan accuracy.

B. Any non-compliance found shall be recorded and include:

1. A description of the defect and the adverse impacts which result.

2. What corrective action is required.

3. The name and address of the responsible party or organization.

4. The recommended time frame for completion of corrective measures to be taken.

C. Copies of non-compliance reports and user responses shall be forwarded to the Technical Committee Chairperson for review and recommendations.

D. The BLM shall provide written notice of the scheduled inspection date to all site users at least 30 days in advance, and each user may arrange to have a representative available at the site at the time of the inspection.

SECTION 3: When Interference Occurs

A. All users shall cooperate fully with the Association and the BLM in identification and correction of any interference-related problems.

B. In concept, existing users have the right of non-interference from new users. However, neither this Association nor the BLM shall recognize interference complaints from users who do not themselves meet minimum site technical standards established by this management plan, or those who are not members in good standing.

C. When a new user applies for a ROW to install a system, or an existing user applies for an amendment on the site, the BLM will advise all of the existing users as to the technical and physical parameters of the proposed system so that they may ascertain if the proposed installation is physically and electronically compatible with their installed system(s).

D. The members will be given a period not to exceed thirty days from receipt of the official BLM Notice in which to comment to the BLM and the applicant on probable interference. Comments received will be forwarded to the Technical Committee for evaluation. The Technical Committee will be given up to 30 days to evaluate the comments. If, at the end of the evaluation period, the Technical Committee determines that there are no apparent interference problems, they will recommend approval of the application to BLM.

E. If the technical evaluations reflect that there may be interference problems with other users, the applicant will have up to thirty days to respond to the BLM on remedies for interference problems. These remedies may include engineering analysis and other pertinent information. A field test for compatibility may be requested at the expense of the applicant. Based on the data submitted by the applicant, the Technical Committee will make a recommendation to the BLM with supporting rationale.

ARTICLE V

SECTION 1: Association Meetings

A quorum shall be present at any meeting to conduct any business of the Black Mountain (Arden) Communication Site User's Association. A quorum shall be defined as a simple majority of the members of the User's Association which are in good standing.

A. Annual
An annual meeting shall be held on a date voted on by Association members. Additional meetings may be scheduled at any time the Chairperson requests to carry out the functions of the user group.

B. Special

Special meetings to consider specific new issues shall be held at a time and place as may be designated by the Chairperson, a quorum (simple majority) of the User's Association, or the BLM's Authorized Officer. Notices for such meetings shall state the purpose(s) for which the meeting is called, and shall adhere to the advance notice requirement. No business shall be transacted at special meetings except as stated in the notice unless the members at the meeting give their unanimous consent thereto.

SECTION 2: Advance Notice

All meeting notices shall be distributed no less than thirty days before the scheduled date. Exceptions may be made to respond to an emergency. Notices shall include the date, time, place and an agenda of items for the meeting. If any guests are scheduled to attend, that information should also be included. At the discretion of the Chairperson, the requester of a special meeting may be required to pay the publication cost of advance notice for the Association's special meeting.

SECTION 3: Order of Business

Robert's Rules of Order shall be followed in all procedural matters. Meetings shall have the following general form:

Call to order
Sign-in
Reading of the minutes of the last meeting
Report of Financial Committee
Report of Technical Committee
Determination of standing of members
Old business
New business
Selection of officers (annual meeting)
Appointment of committees (annual meetings)
Comments from members
Adjournment

ARTICLE VI

SECTION 1: Amendments

The Association may amend or repeal bylaws of two-thirds of the voting members present favor such action. Proposed changes to the bylaws will be presented in writing at the annual meeting. Votes may be cast in person by the holder, an authorized representative, by a written proxy carried by an attending member, or by a pre-written decision.

The bylaws may also be amended by mail. The proposed amendment(s) shall be mailed to all members in good standing and shall provide for a 30-day period from the date of the mailing in which to submit comments. The amendments may be passed if two-thirds of all eligible members concur in writing to the amendment(s) as worded in the mailing.

The Association may enact such necessary supplements and committees which are deemed to be appropriate to carry out its functions.

SECTION 2: Execution and Implementation

Execution of this User's Association Constitution and Bylaws will bind the signatories to abide by the terms of the Black Mountain (Arden) Communication Site Management Plan, of which this document is a part.

Implementation of this agreement shall become effective upon execution by the BLM's Authorized Officer after the signature of each of the existing right-of-way grant holders on the site.

Appendix C

Right of Way Grant Holders

On the

Black Mountain (Arden) Communication Site

ROW	USER	CONTACT	PHONE
N-17446	Nextel Communication 3610 S. Highland Dr. Las Vegas, NV 89103	Nick Jobe	702-873-5000
N-21120	Nevada Public Radio (KNPR) 1289 S. Torrey Pines Drive Las Vegas, NV 89146	Phil Burger	702-258-9895
N-27727	KLAS Inc. 3228 Channel 8 Drive Las Vegas, NV 80919	Jack Wilkinson	702-792-8801
N-27727	KTNV 3355 South Valley View Blvd Las Vegas, NV 89102	Ron Adair	702-876-1313
N-39108	MCI Telecom Corporation 4187 E. Sahara Las Vegas, NV 89104	Frank Filingeri	702-641-0821
N-42416	Heftel Broadcasting Corporation 6767 W. Tropicanna Ave, Suite 102 Las Vegas, NV 89103	Jose Valle	702-367-3322
N-46190	Heftel Broadcasting Corporation 6767 W. Tropicanna Ave, Suite 102 Las Vegas, NV 89103	Jose Valle	702-367-3322
N-48055	Motorola C&E 9980 Carroll Canyon Rd. San Diego, CA 92131	Mike Carter	619-530-8377
N-48537	Tower Management, Inc. 3840 S. Jones Las Vegas, NV 89103	Dan Koker	702-227-4668
N-51965	Clark County Southern Nevada Area Communications Council Fire Station 18 575 E. Flamingo Road Las Vegas, NV 89119	Jim Wilson	702-455-7311
N-053768	AT&T Real Estate Manager AT&T Wireless Services	Dennis Neal	602-418-5644

	2398 E. Camelback Road, Ste 1100 Phoenix, AZ 85016		
N-55820	KXTE Extreme Radio 6655 W. Sahara, Suite C216 Las Vegas, NV 89146	Tracy Teagarden	702-889-7321
N-59718	ATF 600 Las Vegas Blvd Las Vegas, NV 89101	Butch Luther	206-764-3434
N-59547	Autotel Bend, OR	Richard Oberdorfer	702-293-4700
N-61719	Clark County Southern Nevada Area Fire Station 18 575 E. Flamingo Road Las Vegas, NV 89119	Jim Wilson	702-455-7390
N-65513	University of Nevada Reno Seismological Lab, MS 174 Reno, Nevada 89557	Walter Nicks	702-784-4975
N-65514	Titan Towers P.O. Box 6972 Abilene, Texas 79608-6972	David Baker	800-555-8935 Ext. 6005

APPENDIX H

Biological Management Strategy

Biological Management Strategy

Prepared by

Gerald Hickman

Bureau of Land Management, Las Vegas Field Office

1.0 INTRODUCTION

The study of wildlife species has in recent times become, of necessity, more an effort to determine the impacts and results of human environmental development on animal populations. Along these lines, the study of the urban interface with undeveloped lands is becoming more important than ever.

The Sloan Canyon National Conservation Area (NCA) offers a unique opportunity to add data to the study of the effects of housing developments on several wild populations. As the communities of Henderson and Boulder City continue to grow, several populations with extensive home ranges will be experiencing the loss of some familiar habitats no longer available to them. BLM will be researching and monitoring the health of these populations with the cooperation of universities and federal and state agencies.

The desert tortoise (*Gopherus agassizii*) will be addressed through formal consultation with the U.S. Fish and Wildlife Service and therefore will not be considered in this management strategy.

The study of species addressed in this general management strategy may help maintain the ecological integrity and biodiversity of the NCA, may indicate through survey data when habitat is being fragmented, and can be used as a focal point for helping the public learn about and support conservation of natural resources in southern Nevada.

The species to be covered in this management plan will include those listed below:

Mammals

- Nelson's Desert Bighorn Sheep (*Ovis canadensis*)
- Coyote (*Canis latrans)*
- Bobcat (*Felis rufus)*
- Grey fox (*Urocyon cinereoargenteus*)
- Kit fox (*Vulpes macrotis*)
- Cougar (Mountain lion) (*Felis concolor*)
- Several species of small mammals (e.g., Kangaroo rats [*Dipodomys* sp.]), desert wood rats (*Neotoma lepida*), pocket mice, grasshopper mice, and deer mice)

- Various species of bats (20 species of bats have been recorded in Clark County, Nevada).

The following bats are likely to be found in Sloan NCA:

- California leaf-nosed bat (*Macrotus californicus*)
- California myotis (*Myotis californicus*)
- Fringed myotis (*Myotis thysanodes*)
- Yuma myotis (*Myotis yamanensis*)
- Western pipistrelle (*Pipistrellus hesperus*)
- Big brown bat (*Eptesicus fuscus*)
- Spotted bat (*Euderma maculatum*)
- Pallid bat (*Antrozous pallidus*)
- Brazilian free-tailed bat (*Tadarida brasiliensis*)
- Big free-tailed bat (*Nyctinomops macrotis*).

Reptiles

- Western Chuckwalla (*Sauromalus obesus*)
- Side-blotched lizard (*Uta stansburiana*)
- Western Whiptails (*Cnemidolphorus tigris*)
- Zebra-tailed lizards (*Callisaurus draconoides*)
- Desert spiny lizard (*Sceloporus magister*)
- Desert horned lizard (*Phrynosoma platyrhinos*)
- Collared lizard (*Crotaphytus insularis)*
- Desert iguana (*Dipsosaurus dorsalis)*
- Western banded gecko (*Coleonyx variegates*)
- Leopard lizard (*Gambelia wislizenii*)
- Gila Monster (*Heloderma suspectum*)
- Coachwhip snake (*Masticophis flagellum*)
- Gopher snake (*Pituophis melanoleucus*)
- California kingsnake (*Lampropeltis getulus*)
- Mojave desert sidewinder rattlesnake (*Crotalus cerastes*)
- Mojave green rattlesnake (*C. scutulatus*)
- Southwestern speckled rattlesnake (*C. mitchellii pyrrhus*)

Amphibians

Red spotted toads *(Bufo punctatus*) may be the only amphibians expected in the Sloan Canyon NCA

Birds—Resident Species

- Red-tailed hawk
- Prairie falcon
- Merlin turkey vultures
- Barn owl
- Great horned owl
- Common raven
- Verdins
- Screech owls

Birds—Migratory Visitors

- Various hummingbirds
- Various warblers
- Swallows
- Orioles
- Eagles
- Peregrine falcon
- Wrens
- Burrowing owl

2.0 BIOLOGICAL SURVEYS

This Biological Management Strategy for Sloan Canyon NCA identifies methods that may allow the collection of baseline data for addressing population numbers and ongoing efforts for determining long-term population trends.

An example of one important species in the NCA is the western chuckwalla described below. Two survey techniques for this species and their relative merits follow.

2.1 Western Chuckwalla (*Sauromalus obesus*)

The strictly herbivorous reptile diet of this species produces a scat of fibrose texture that is distinct in shape from other herbivorous reptiles. Chuckwalla scat varies in color from green (freshest) to brown to grey (oldest), is fibrose in texture, elongate and narrow in shape, measuring from about 15 mm (.6 in) long by 3 mm wide (0.1 in) to about 70 mm (2.7 in) long by 10 mm (0.5 in) wide (B. Hardenbrook, pers. comm. 1996). Desert tortoise scat (although similar in appearance to chuckwalla scat) is larger in diameter and oval in shape, and most can be distinguished from chuckwalla scat. Generally, only scat of small tortoises may look exactly like small chuckwalla scat.

Chuckwallas were mostly observed between the hours of 10:30 to 15:30 (small sample size). Scat was observed as high as 1,550 m (5,100 feet).

2.2 Survey Methods

One should be aware of climatic conditions: during a dry year, sightings will decrease because of food availability; sightings are expected to increase during a moist cycle.

Spotting Surveys (also known as "Visual Encounter Surveys" by the Nevada Department of Wildlife (NDOW); this method is not very effective). Spotting surveys are conducted by using scopes or binoculars to search for chuckwalla on rock outcrops. Surveys should be conducted when air temperatures do not exceed 40 degrees C (104 F). Surveys should be conducted during active season: mid-February to early June. During most years, mid-summer and winter surveys should be avoided. With several biologists, search a small outcrop 2.5 to 7.5 acres for an hour or until a chuckwalla is seen, whichever comes first; then, move to the next site.

Scat Surveys (this method is more effective). Scat surveys are conducted by several biologists to search area less than 2.5 to 7.5 acres for 1 hour or until scat is located, whichever comes first. Surveys should be conducted using meandering transects to identify "valid chuckwalla scat" defined as generally at least 30 mm (1.2 inches) long and on rock outcrops where tortoises typically will not climb. The surface of rock should be recorded to determine if it is smooth or cracked, which would stop and trap scat.

2.3 Additional Survey Methods To Be Considered

Night Surveys. The roadless characteristic of Sloan NCA makes nocturnal surveys for reptiles difficult and more expensive than for roaded areas (e.g., Redrock Canyon NCA). The majority of reptile species surveys will need to be similar to these suggested for western chuckwalla.

Anabat Technology. It will be especially important to identify members of the bat community in Sloan NCA with the surveys using Anabat technology. This technology is used to detect the auditory signatures of bat species while feeding and to record the data on an associated computer.

Nesting Raptors. Surveys for nesting hawks can be conducted on foot or by helicopter. Surveys for burrowing owls include searching for adult owls with young when actively hunting for prey and burrow searches because burrowing owls often use unoccupied desert tortoise burrows for shelter and nesting in season. Regular visits to cliff areas will reveal the presence of kestrels and great horned owls.

Mammal Surveys. NDOW will survey desert bighorn sheep according to the statewide protocol. NDOW, with the cooperation of BLM staff, will conduct the translocation of bighorn sheep on an as-needed basis.

One technique that can help determine presence mammalian predators (e.g., kit fox, gray fox, ringtails, bobcat, cougar and coyote) is to place remote sensing camera arrays (camera traps) in the NCA. Scat and track surveys can be conducted for all the mammal species listed. Nocturnal spotlight surveys can be used by personnel on foot in the NCA for most mammals. It is also possible to use trained dogs to help locate scats, kit fox dens, and fox use areas (although this method requires extensive training of the dogs employed).

Avian Surveys. In 2004, BLM personnel in the Sloan Canyon Area of Critical Environmental Concern (ACEC), in cooperation with Great Basin Bird Observatory, conducted a point count survey of birds. This type of survey should be continued in the ACEC and expanded to other NCA areas during the breeding season to gather annual data about presence and density of nesting species.

The known nest sites of hawks, owls, and eagles (when such are located) should be visited and surveyed annually. At the time of this document's preparation, nesting owls were suspected in the NCA. Kestrel nest-sites and red-tailed hawk nests have been documented.

Winter surveys of the NCA will determine the extent and variety of the species using the habitat annually or periodically. NDOW indicates that Sloan Canyon is an important winter area for Merlin falcons. The importance of the Colorado River and its reservoirs for California Condor and for Bald and Golden Eagles indicates that Sloan may occasionally become usable habitat for these species but will not likely be used regularly.

Marking individual birds can be helpful in determining home range and seasonal use of a habitat by numerous species. Mist nets are a standard method for capturing birds for banding and other marking studies. Such studies may be warranted if general monitoring techniques indicate severe population changes.

3.0 PLANTS

The Blue Diamond cholla is a Nevada State plant species of concern found in limited areas of Sloan Canyon NCA. Any developments, facilities, and trails in the NCA must be sensitive to the distribution of this plant in the NCA. Any disturbance of this species will require BLM permitting.

Several penstemon species are BLM sensitive and may be found in the various washes in the NCA. Steps should be taken to mitigate fragmentation of these populations when developments, facilities, and trail construction take place in the NCA.

4.0 INVERTEBRATES

Little is recorded about the insects and other invertebrates species native to Sloan Canyon NCA. The actual community of these species is likely to be much larger and more diverse than is suggested by the following list. These representatives have been recorded in the NCA by various observers: desert cockroach (*Arenivaga*

sp.), various flies of the order Diptera, pallid-winged grasshoppers (*Trimerotropis pallidipennis*), mud dauber wasp (*Sceliphron caementarium*), pepsis wasp or tarantula hawk (*Pepsis sp.*), velvet ant (*Dasymutilla gloriosa*), harvester ant (*Pogonomyrmex sp.*), funnel web spider (*Agelenopsis sp.*), orb weaver of the family Araneidae, desert recluse spider (*Loxosceles deserta*), black widow spider (*Latrodectus hesperus*), tarantula (*Aphonopelma sp.*), centipede (*Scolopendra sp.*), devil scorpion (*Vaejovis confuses*), giant desert scorpion (*Hadrusus spadix*), pinacate beetle (*Eleodes sp.*), honey bee (*Apis sp.*), and various moths and butterflies of the Order Lepidoptera. The information about invertebrates is based on studies by Alex L Heindl of UNLV.

Various standard entomological survey techniques can be used to determine a baseline level for invertebrates in Sloan Canyon NCA: net sweeps, attracting specimens to nocturnal light traps, and other methods for specific conditions.

5.0 BIOLOGICAL SURVEY EXAMPLE

The following documents an example of a one-half day survey conducted in the Sloan Canyon NCA:

June 28, 2004: 7:00 a.m. Until About Noon

Bird Observations

Rock Wren—several pairs, individual adults and young of the year.

- Black-throated Sparrow
- Horned Lark
- Gambel Quail
- Common Raven
- Young of year Redtail Hawk, possible Prairie Falcon
- Ash-throated flycatcher
- Say's Phoebe (no swallows or swifts seen.)

Mammals

- Antelope ground squirrels—a common sighting
- Desert (Nelson's) bighorn sheep—tracks and droppings seen often in upper reaches of canyon and near the big game water project. Bones found were likely those of a young male desert bighorn (e.g., hip girdle, ribs, shoulder blade, no skull found)
- Bobcat droppings seen on four to six locations in the washes
- Cougar droppings seen twice
- Coyote tracks and droppings seen in many parts of the canyon
- No obvious droppings or tracks of any foxes. Kit fox should be in the vicinity of the water project because of the abundance of quail and other birds and insects.

Reptiles

The contractor saw adult and hatchling desert tortoise in Sloan Canyon NCA but we did not find tortoise or sign on this date. We did not see Gila Monster or sign during this visit.

We did not see any snakes during this visit. Although it was 89 to a high of about 94 while we were in the NCA, there was a very pleasant and strong wind blowing to help cool us as we worked. We looked diligently for chuckwalla in the normal locations, but we did not see even one. We did see the following lizards:

- Uta—side-blotched lizard—saw 8 to 11 (most common reptile in Sloan NCA)
- Leopard lizard—saw two individuals
- Desert Iguana—one or two seen
- Whiptailed lizard—a common sighting (about seven seen)
- Desert horned lizard—one seen, captured, and released
- Ants (the principal food for horned lizards)—seemed abundant in upper reaches of canyon
- Collared Lizard—one very colorful specimen on a cliff above the water project.
- Spiny Desert Lizard—one seen. We did not find any amphibians.

APPENDIX I
Draft Wilderness Management Plan

This draft Wilderness Management Plan provides general approaches to meeting the wilderness goals and objectives described in Chapter 2 of the Sloan Canyon National Conservation Area (NCA) Draft Resource Management Plan/Environmental Impact Statement (RMP/EIS). The range of possible wilderness management actions is presented in Chapter 2, and potential impacts are analyzed in Chapter 4. Once the proposed actions within the RMP are selected, a Final Wilderness Management Plan based on those specified proposed actions will be included in the Final RMP/EIS.

DRAFT NORTH MCCULLOUGH WILDERNESS MANAGEMENT PLAN

This draft Wilderness Management Plan provides general approaches to meeting the wilderness goals and objectives described in Chapter 2 of the Sloan Canyon National Conservation Area (NCA) Draft Resource Management Plan/Environmental Impact Statement (RMP/EIS). The range of possible wilderness management actions is presented in Chapter 2, and potential impacts are analyzed in Chapter 4. Once the proposed actions within the RMP are selected, a Final Wilderness Management Plan based on those specified proposed actions will be included in the Final RMP/EIS.

This draft plan covers management of the 14,765-acre North McCullough Wilderness Area that lies entirely within the southwest portion of the Sloan Canyon NCA. This Wilderness is a unique component of the National Preservation System because it is located less than 15 miles south of Las Vegas, Nevada, and only a few miles from the fast-growing City of Henderson. This draft plan was developed as part of the Sloan Canyon NCA RMP/EIS. Consequently, the range of wilderness management options and the associated environmental impacts are discussed in the Draft RMP/EIS. This plan is based on actions that meet the recreation and wilderness management goals and objectives described in that document.

Because the Sloan Canyon NCA and North McCullough Wilderness were recently designated and visitation has historically been low, the management approach is intended to be flexible and responsive as recreation management needs and resource conditions change. Monitoring would be used to establish and assess the Wilderness' baseline conditions and document any changes to them.

1.0 INTRODUCTION

On November 6, 2002, the Clark County Conservation of Public Land and Natural Resources Act of 2002 (Clark County Act) established the Sloan Canyon NCA and North McCullough Wilderness Area. Before designation, most of the current Wilderness was part of the 47,166-acre North McCullough Wilderness Study Area. The North McCullough Wilderness Area is managed according the Wilderness Act of 1964, Federal Land Policy and Management Act, and the Clark County Act. BLM implements these laws through its Wilderness Management regulations, published as a final rule in 43 *Code of Federal Regulations* 6300 and 8560.

1.1 Location and Access

The Wilderness is roughly triangular in shape and spans about 6 miles at its longest and widest points. The eastern boundary follows the crest of the escarpment whose base forms the eastern edged of the NCA. The western boundary is defined by the volcanic features that rim Hidden Valley. The northern boundary crosses the Sutor Hills, Sloan Canyon, and a large basin that drains the western side of the escarpment.

The Wilderness contains the Sloan Canyon Petroglyph Site and other prominent features such as Sutor and Hanna Peaks. Access to the area is limited to several vehicle routes approaching from the northwest in the

Sloan Canyon area and the southwest from Hidden Valley. These routes access Sloan Canyon and the wash leading to the Petroglyph Site. Other access to the Wilderness is by off-trail hiking or horseback riding because no formal trails, trailheads, or facilities are adjacent to or within the Wilderness.

1.2 Wilderness Values and Unique Attributes

The quality of the wilderness values was a key consideration in designating the North McCullough Wilderness Area. An important element was the Wilderness' value in providing primitive and unconfined recreation use adjacent to a rapidly expanding urban area. Although the Wilderness appears natural, several signs of man exist, primarily vehicle tracks attributed to off-highway vehicle (OHV) travel.

Solitude opportunities are available due to the low levels of recreation use and topography that provides some natural screening from the adjacent urban area or other wilderness users. Wilderness recreation opportunities (e.g., hiking and horseback riding) are easily pursued in this environment. Opportunities for camping are possible, but they not frequently pursued.

1.3 Aircraft Overflights

The highest percentage of low-level aircraft flying over the Wilderness is from scenic tours originating from the North Las Vegas Airport, although private flights from Henderson Executive Airport, located several miles from the northwestern NCA boundary, provide some contribution. In addition, overflights from McCarran International Airport pass directly over the Wilderness, although they tend to be localized to the western edge and at an altitude of more than 4,000 feet above the land's surface.

1.4 Recreation Use

Levels of recreation use within the North McCullough Wilderness Area were not closely monitored before its designation. Preliminary visitor estimates conducted from the winter of 2003 through the summer of 2004 indicate about 5 to 10 persons accessing the Sloan Canyon Petroglyph Site per weekday, with slightly higher visitation on weekends. Use of the Wilderness appears to be primarily for day hiking to points of interest (e.g., Sloan Canyon, Sutor and Hanna Peaks, and McCullough escarpment). Other types of recreation are extremely limited. Immediately outside the Wilderness, visitor use observation indicates moderate levels of OHV use and occasional camping.

1.5 Disturbance, Development, and Wilderness Impacts

A disturbance inventory for the North McCullough Wilderness Area was completed on January 2003. Inventory findings indicate little disturbance requires rehabilitation, but several vehicle tracks and several small spurs may require restoration. Table I.1 lists Wilderness disturbances found during this inventory.

Table I.1. North McCullough Wilderness Area Disturbances

Disturbance Number	Description	Location
North McCullough-1	Two-track route entering Wilderness across Northern Boundary	East of Sloan Canyon. Approximate route and location shown as 4WD road on USGS 1:24,000 maps. T 23 and 24 S; R 61 and 62 E; Sections 36, 1, 6
North McCullough-2	Spur two-track intersecting disturbance NM-1	T 23 S; R 61 E; Section 36
North McCullough-3	Two-track route following a rough wash	T 24 S; R 61 E; Section 3, SW1/4,SW1/4,SW1/4
North McCullough-4	Two-track route that intersects disturbance NM-3	T 24 S; R 61 E; Section 10, NE1/4,NE1/4
North McCullough-5	Route accessing North McCullough Slickrock Catchment #1 area and continuing to west	T 24 S; R 61 E; Sections 2 and 11
North McCullough-6	Weak two-track route from disturbance NM-5 accessing North McCullough Slickrock Catchment #2 site	T 24 S; R 61 E; Section 2
North McCullough Slickrock Catchment #1	Wildlife water development including catchment, tanks, and water access for wildlife	T 24 S; R 61 E; Section 2
Miscellaneous sites with past mining activity	Approximately three abandoned mining claims exist within the northwestern portion of the Wilderness. Approximate locations are T 23 S; R 61 E; Sections 23 and 26 and T 24 S; R 62 E; Section 6. Low levels of disturbance associated with claim assessments and improvements may be present.	

Source: BLM 2003d.

The North McCullough Slickrock Catchment #1 (Project #4916) is the only wildlife water development within the Wilderness, and it is just south of the Sloan Canyon Petroglyph Site. This wildlife water development was installed before Wilderness designation when the area was a Wilderness Study Area. The environmental assessment for the development stated that motorized vehicles would not be required for future maintenance.

The Wilderness boundary is inaccessible to vehicles in many places; consequently, illegal use of the Wilderness has not been a significant issue in the past. But in some portions, the boundary is not well defined by natural features, and increased publicity and visitation would require boundary delineation. The boundary is currently marked and signed in only a few locations. Continuing or increased levels of

disturbance from illegal use of the Wilderness remains a possibility until known access points are signed and barricaded as appropriate.

2.0 NATIONAL WILDERNESS MANAGEMENT GOALS

The following goals direct the objectives, policy, management strategies, and actions developed in this plan.

1. To provide for the long-term protection and preservation of the area's wilderness character under a principle of nondegradation. The area's natural condition, opportunities for solitude, opportunities for primitive and unconfined types of recreation and any ecological, geological, or other features of scientific, educational, scenic, or historical value present will be managed so that they remain unimpaired.
2. To manage the wilderness area for the use and enjoyment of visitors in a manner that would leave the area unimpaired for future use and enjoyment as wilderness. The wilderness resource will be dominant in all management decisions where a choice must be made between preservation of wilderness and visitor use.
3. To manage the area using the minimum requirement/minimum tool, equipment, or structure necessary to successfully, safely, and economically accomplish the objective, the chose tool, equipment, or structure should be the one that least degrades wilderness values temporarily or permanently. Management will seek to preserve spontaneity of use and as much freedom from regulations as possible.
4. To manage nonconforming but accepted uses permitted by the Wilderness Act and subsequent laws in a manner that will prevent unnecessary or undue degradation of the area's wilderness character.

3.0 ISSUES

BLM specialists, other agencies, and the public identified issues during the scoping period for the Sloan Canyon NCA RMP/EIS. The issues addressed as part of the RMP process and included in this Wilderness Management Plan are addressed below.

3.1 Plan Issues

- How will the appropriate level of use for Sloan Canyon and the entire North McCullough Wilderness Area be determined?
- What types of ongoing visitor use monitoring will be addressed in the plan?
- How will the appropriate level of signage for the Wilderness be determined?
- How will seasons of use for the Wilderness be addressed?

- How will a Limits of Acceptable Change process be incorporated into the development of the North McCullough Wilderness Management Plan?
- How will visitor information collection systems be applied to the Wilderness and used to manage Wilderness recreation?
- How will rehabilitation of ways within the Wilderness be addressed?
- How would interpretation attract visitation to the Wilderness Area? How would increased visitation lead to inappropriate permanent human presence and uses that impact wilderness values?
- How will trail use and development in the Wilderness be addressed?
- How will recreational use of the NCA be managed to balance the spectrum of recreation intensity between the Wilderness and NCA outside the Wilderness?
- How will the establishment of new rock climbing routes be addressed?
- How will BLM law enforcement and wilderness rangers be used to manage wilderness?
- How will aerial tours of the area be addressed for the Wilderness?
- How will the Wilderness Management Plan be embedded in the overall management plan to ensure that it is recognizable and consistent with plans for other Wilderness areas in the region?
- How will the coordination of volunteer groups be incorporated in wilderness management?
- How will trespassing in the Wilderness be addressed?
- How will the appropriate herd size for Bighorn Sheep in the Wilderness be determined in the plan? How will wildlife habitat in the Wilderness Area be managed?
- How will the proximity of urban areas to the NCA and Wilderness be addressed to ensure appropriate access and protection of resources?

4.0 MANAGEMENT STRATEGY

The strategy of the North McCullough Wilderness Plan is to maintain or improve the natural character of the Wilderness by protecting many of the near-pristine conditions while rehabilitating existing human impacts. The strategy recognizes that as Las Vegas and Henderson expand their borders and populations over the coming years, the Wilderness will be subject to dramatic increases in visitor use and its associated consequences. Wilderness characteristics, such as solitude, will be maintained at or below thresholds established after baseline information has been collected and analyzed. Separate thresholds would be

established for the highly visited Sloan Canyon Petroglyph Site. The plan emphasizes monitoring and managers' ability to take corrective actions, if necessary.

The Wilderness will be managed in a manner that protects the highest qualities of wilderness character consistent with appropriate levels of public use. The NCA provides wilderness experiences for a wide range of the public. Consequently, the Sloan Canyon Petroglyph Site, as well as its northern and southern accesses, will be managed as a more concentrated use area. This area of concentrated use constitutes a small percentage of the 14,765-acre Wilderness. The Petroglyph Site has been an important destination prehistorically and historically, and it will likely see increased visitation as the NCA is developed and the surrounding population increases. BLM believes that visiting the Petroglyph Site is a rare and unique opportunity for the American public and that the visitor experience to this site furthers the goals of the Wilderness by generating an understanding and appreciation of the Wilderness. BLM is committed to managing the Petroglyph Site intensively to prevent the degradation of natural and cultural resources attributed to visitor use. The remaining Wilderness would be maintained in its current condition to prevent pristine areas from gradually becoming affected.

The challenge of wilderness management is one of meeting public demand for recreation use while protecting wilderness values such as ecological integrity and solitude. This plan attempts to identify an acceptable level of recreation impacts and assess the trade-offs of resource protection, visitor freedom, and wilderness values. BLM is aware that each visitor holds a personal set of expectations and assumptions about what a wilderness experience is or should be. BLM also believes that almost everyone's desired experience can be provided across the Wilderness with this management strategy. However, it was recognized that at times peak public demand will not be met, but to do so would have unacceptable impacts on Wilderness values.

5.0 NORTH MCCULLOUGH WILDERNESS AREA MANAGEMENT

This section provides the means for resolving the RMP/EIS issues identified, given the National Wilderness Management Goals, the Clark County Act, and the strategy presented above.

5.1 Objective 1

Objective 1 is to maintain or improve solitude within the Wilderness.

Possible Management Actions

Solitude within the North McCullough Wilderness Area outside Sloan Canyon would be maintained at or below a threshold established through monitoring. A separate threshold would be established within the Sloan Canyon Petroglyph Site, and solitude would be maintained at or below that level. Management techniques used to maintain solitude at or below the threshold would include people at one time, party size, timing of visits, daily visitation limits, use permits, reservations, number of guides, and self-guided tours.

Natural soundscapes within BLM's control would be maintained within the Wilderness at or below baseline ambient noise levels established through noise monitoring.

Monitoring

Visitors' experiences would be monitored through various methods, including providing visitor comment cards at register boxes, documenting visitor encounters by BLM rangers, documenting regular trail patrols by rangers (especially during high-use periods), and recording visitor comments received through other methods. Initially, data obtained from these monitoring activities would be used to evaluate encounter standards and develop thresholds of use.

Visitor comment cards, to be provided at register boxes, would be collected periodically and reviewed. Reviews could take place more frequently during the initial stages of monitoring to collect baseline data. As baseline data becomes established, reviews could take place with decreasing intervals. Comment cards would ask visitors about crowding and noise. Public comments received via other media would also be recorded and filed.

Periodically, BLM staff would hike designated and constructed trails and backcountry areas to evaluate wilderness qualities. Data collected could include the number of visitors, visitor experiences, and noise levels. Areas that receive heavy use would be monitored regularly. Initially, the visitor experience at the Petroglyph Site would be monitored whenever BLM staff is present, and automatic counters would be established at appropriate locations to count visitors on site.

5.2 Objective 2

Objective 2 is to maintain or improve naturalness in the Wilderness to achieve a standard of no known surface disturbances and stable or decreasing non-native plant populations.

Possible Management Actions

Hiking and equestrian trails would be designated for resource protection. The Sloan Canyon wash would also be designated as a north access from the visitor center to the canyon. New social trails resulting in resource damage within the Wilderness Area (those not desired for future designation, modification, or use) would be restored using the minimum requirement/minimum tool. Low profile, wilderness-appropriate, closed signs would be installed on social trails. Recreational use resulting in social trails would be dispersed to other areas by using area closures, barriers, and visitor information. As appropriate, additional trails would be designed, constructed, and maintained for resource protection and to enhance opportunities for primitive recreation.

Visitation within the Wilderness would be limited to a number that would not cause adverse impacts to wilderness characteristics (e.g., increased social trails, crowding, vegetation damage, soil compaction, cultural resource impacts, and wildlife impacts). Although visitation limits have been established for the Sloan

Canyon Petroglyph Site through the Sloan Canyon NCA RMP/EIS, appropriate visitation threshold(s) would be determined and established for the remainder of the Wilderness by monitoring impacts of visitation to wilderness characteristics. When appropriate, the visitation threshold(s) would be adjusted to ensure that wilderness characteristics are not adversely impacted.

Permanent improvements would be minimal and allowed for only the purposes of resource protection and enhancement of wilderness values.

Vandalism and illegal dumping within the Wilderness Area would be removed or repaired using the appropriate minimum requirement/minimum tool. Human-caused disturbances within the Wilderness would be restored within 3 years of the RMP Record of Decision using appropriate resources determined through a minimum tool analysis for each rehabilitation project.

The natural condition and biodiversity of the Wilderness should be protected by preventing or limiting the spread of noxious and invasive weeds that displace native vegetation through integrated weed management principles to detect and eradicate all existing infestations, by eliminating new infestations before they begin to spread, and by preventing or limiting the spread of established weed into areas containing little or no infestations. Noxious and invasive weeds would be managed in accordance with an integrated weed management program by cooperating with state and county weed programs and building cooperative weed management areas to implement the goals of the initiative, *Partners Against Weeds—An Action Plan for the BLM* (BLM 1996). Certified weed-free hay would be required throughout the NCA, including the Wilderness, to prevent noxious and invasive weeds.

A minimum requirement/minimum tool analysis would be conducted for all proposed actions within the North McCullough Wilderness Area. A case-by-case minimum requirement/minimum tool analysis would be included in all "Appropriate Management Response" decisions for wildfire in the Wilderness.

Access to the North McCullough Slickrock Catchment #1 (Maintenance Project #4916) would be managed in accordance with the Memorandum of Understanding with the Nevada Department of Wildlife, or current policy. No motorized access to the wildlife water (Project #4916) would be permitted.

The Wilderness should be managed as a right-of-way avoidance area.

Grazing within the Wilderness portion of the Hidden Valley Allotment should be managed to desired rangeland conditions approved in the Mojave-Southern Great Basin Resource Advisory Council *Standards and Guidelines for Rangeland Health and Guidelines for Grazing Administration* (BLM 1997). Range improvements or supplement placement should not be allowed within the Wilderness.

Monitoring

A resource baseline would be established to set standards for naturalness. To establish this baseline, monitoring actions would be more intense during the first phase of NCA operation. As with Objective 1, regular patrols by NCA rangers, aircraft flyovers, and comments from visitors could be used to monitor trail usage, trail damage, and proliferation of social trails. Within the first 1.5 years of trail designation and construction, BLM staff and volunteers would complete initial trail condition surveys for all trails within the Wilderness. The surveys would contain quantifiable data that would be used in the future to verify if implementation methods are achieving the RMP goals and objectives. Periodic monitoring would occur after the completion of initial surveys to monitor trail and resource degradation.

Photo points would be established at the wilderness boundary, and photographs would be taken as necessary to determine if damage is occurring to the Wilderness. Photographs of the petroglyphs would be taken once at the beginning of the first phase of NCA operation and then periodically as needed as development of the NCA occurs and visitor use increases. These photos would be used to determine if human-caused or natural deterioration is occurring. This phased approach would enable compensation for a rapid increase in visitation once programs and development of the NCA become operational.

Photo points would be established for rehabilitation sites (e.g., illegal dump sites, two-track routes, and closed trails), and photographs would be taken every 3 to 5 years to determine progress toward natural rehabilitation.

Monitoring of the Slickrock Catchment #1 would be performed during BLM staff visits and through coordination with NDOW.

5.3 Objective 3

Objective 3 is to provide a diversity of opportunities for primitive and unconfined recreation.

Possible Management Actions

Camping would be allowed outside the Sloan Canyon Petroglyph Site, and associated campfires would be allowed only in user-provided fire pans or by using fire blankets. Visitors would be required to pack out all fire waste products. Bouldering and traditional rock climbing (no permanent anchors) would be allowed outside designated sensitive resource areas in the Wilderness. Geocaching would be prohibited.

Dogs would be allowed outside the Sloan Canyon Petroglyph Site, the northern access, and designated sensitive resource areas in the Wilderness. Dog feces would be required to be immediately removed and packed out.

Wilderness boundary signage could be installed on a case-by-case basis on all known and potential Wilderness access routes and visitor use areas near the boundary. Wilderness visitor registers would be installed outside

the Wilderness boundary on high use access routes and would be low profile and natural color. All trailhead signage would be installed outside the Wilderness boundary and would consist of low profile and natural color signs. Route information, maps, and visitor information would be displayed on the signs and trailhead kiosks. Visitor use in the Wilderness would be monitored using staff contacts with visitors, social surveys, and trailhead register data and would be incorporated with NCA-wide visitor use monitoring data.

Wilderness characteristics would be assessed and managed using an array of monitoring systems and techniques such as resource surveys and visitor experience documentation. Monitoring for each Wilderness objective would be continued over the life of the plan. All BLM-administered Wilderness overflights conducted for compliance monitoring would be conducted in a manner that would minimize impacts to wilderness characteristics.

Monitoring

Indicators used to monitor recreation in wilderness would include visitor use and experience surveys, visitation frequency, evidence of human and dog waste, vandalism, area of impact and whether Special Recreation Permits stipulations are met. Methods used for monitoring would include visitor surveys, ongoing management observations, recreation site and improvement measurements, and permit evaluation and compliance. The frequency of monitoring would vary as development and visitation increases.

APPENDIX J

Visual Resource Management

VISUAL RESOURCE MANAGEMENT

The Visual Resource Management (VRM) process is divided into two stages: inventory and analysis. Inventory is associated with resource management planning, while analysis is used primarily to determine if proposed actions are appropriate to a visual resource management class assigned through the Resource Management Plan (RMP).

VISUAL RESOURCE INVENTORY

A visual resource inventory of the Sloan Canyon National Conservation Area (NCA) was conducted during winter 2003 and the resulting inventory classes are shown on Figure J-1, Visual Resource Inventory Classes. The map also shows the Scenic Quality Rating Units (numbered 1-15) on which the visual resource inventory classes were based. A Scenic Quality Rating Unit is a portion of the landscape that displays primarily homogenous visual characteristics of the basic landscape features (e.g., land and water forms, vegetation, and structures) (BLM 2004a). Inventory findings indicate that large portions of the NCA contain little change to the existing landscape and would be conducive to management designed to retain that character. Some portions of the NCA contain moderate or extensive landscape modifications that detract from scenic quality. Such conditions make it challenging to conserve scenic resources. In these areas, opportunities may exist for restoration and mitigation of disturbances. Other areas of the NCA are so seldom seen that their visual resources do not appear to require intensive management. Nevertheless, they may be easily managed to retain existing landscape character and conserve scenic resources despite visual resource inventory ratings of Class III or IV.

The inventory confirmed that the NCA contains large areas of undisturbed desert landscape that can continue to be conserved for scenic quality. Many of the areas inventoried provide scenic backdrops for the urban interface, whereas other portions of the NCA contain remote Wilderness landscapes. A small portion of the NCA has lower visual appeal but remains suitable for a wider variety of multiple uses and provides ample opportunity for restoration of disturbance. Sloan Canyon NCA contains a wide variety of high-quality visual resources that can be managed to maintain and improve on existing conditions.

No Action Alternative

The current VRM Classes for the Sloan Canyon NCA are defined in the Las Vegas RMP and modified by the Clark County Conservation of Public Land and Natural Resources Act of 2002, Title VI (Sloan Canyon NCA Act), which changed the VRM classification of the North McCullough Wilderness Area (see Figure J.2.) These class definitions apply to the No Action Alternative (Alternative A):

- Class I—Authorized actions may not modify existing landscape or attract the attention of casual viewers.

- Class II—Authorized actions may not modify existing landscape or attract the attention of casual viewers.

- Class III—Authorized actions may alter the existing landscape but not to the extent that they attract or focus attention of the casual viewer.

- Class IV—Authorized actions may involve major modification of the landscape's existing character. Authorized actions may create significant landscape alterations and would be obvious to casual viewers.

Action Alternatives

In Alternatives B, C, and D (Figures J.3–J.5), the NCA's visual resources are assigned to the following management classes, as defined in BLM Handbook H-8410-1, *Visual Resource Inventory*:

- Class I—To preserve the existing character of the landscape. Authorized actions may not modify the existing landscape or attract the attention of casual viewers.

- Class II—To retain the existing character of the landscape. The level of change to the characteristic landscape should be low, and may not attract the attention of casual viewers.

- Class III—To partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate and may minimally attract the attention of the casual viewer.

Figure J.1. Visual Resource Inventory Classes



Figure J.2. Visual Resource Management Classes—No Action Alternative

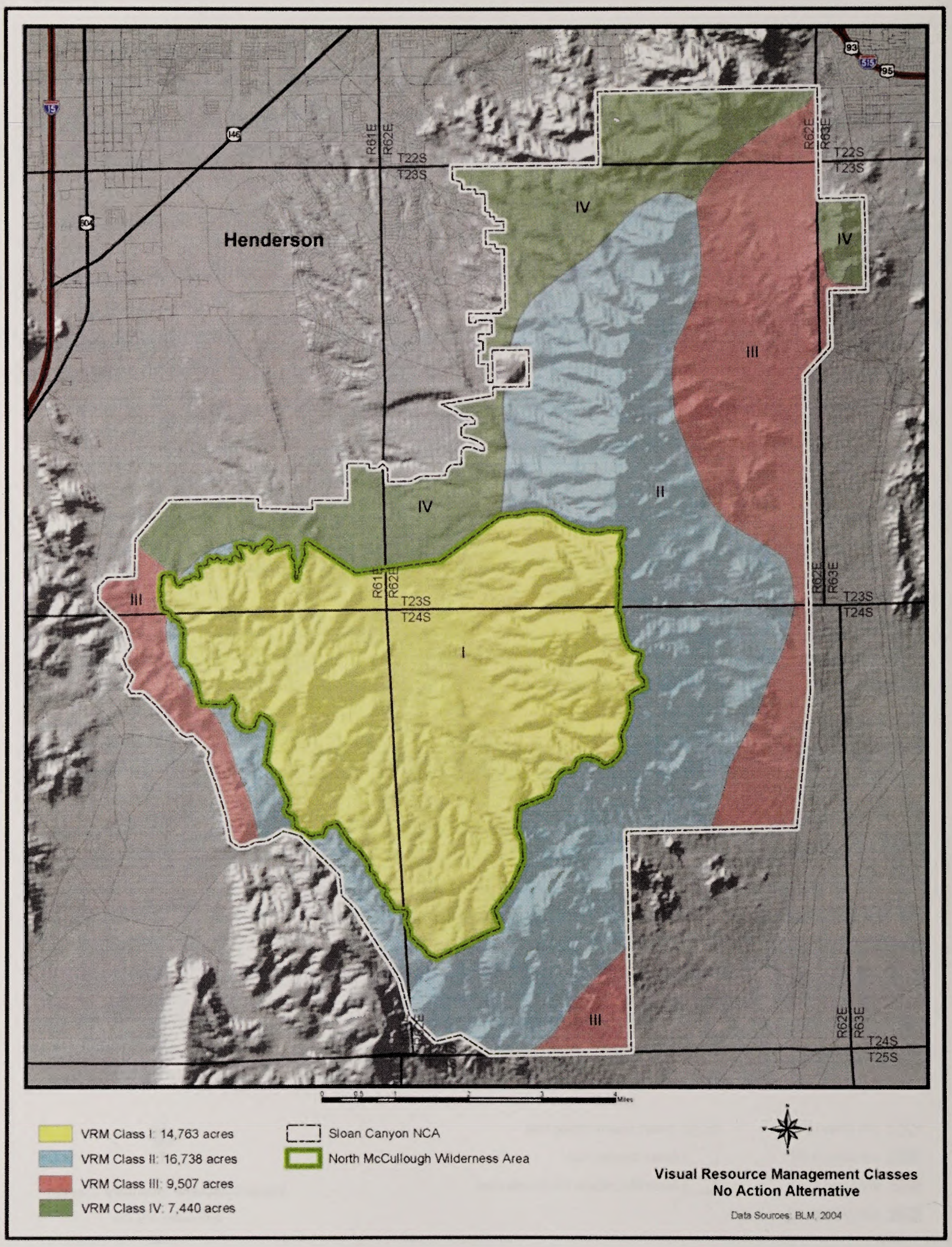


Figure J.3. Visual Resource Management Classes—Alternative B

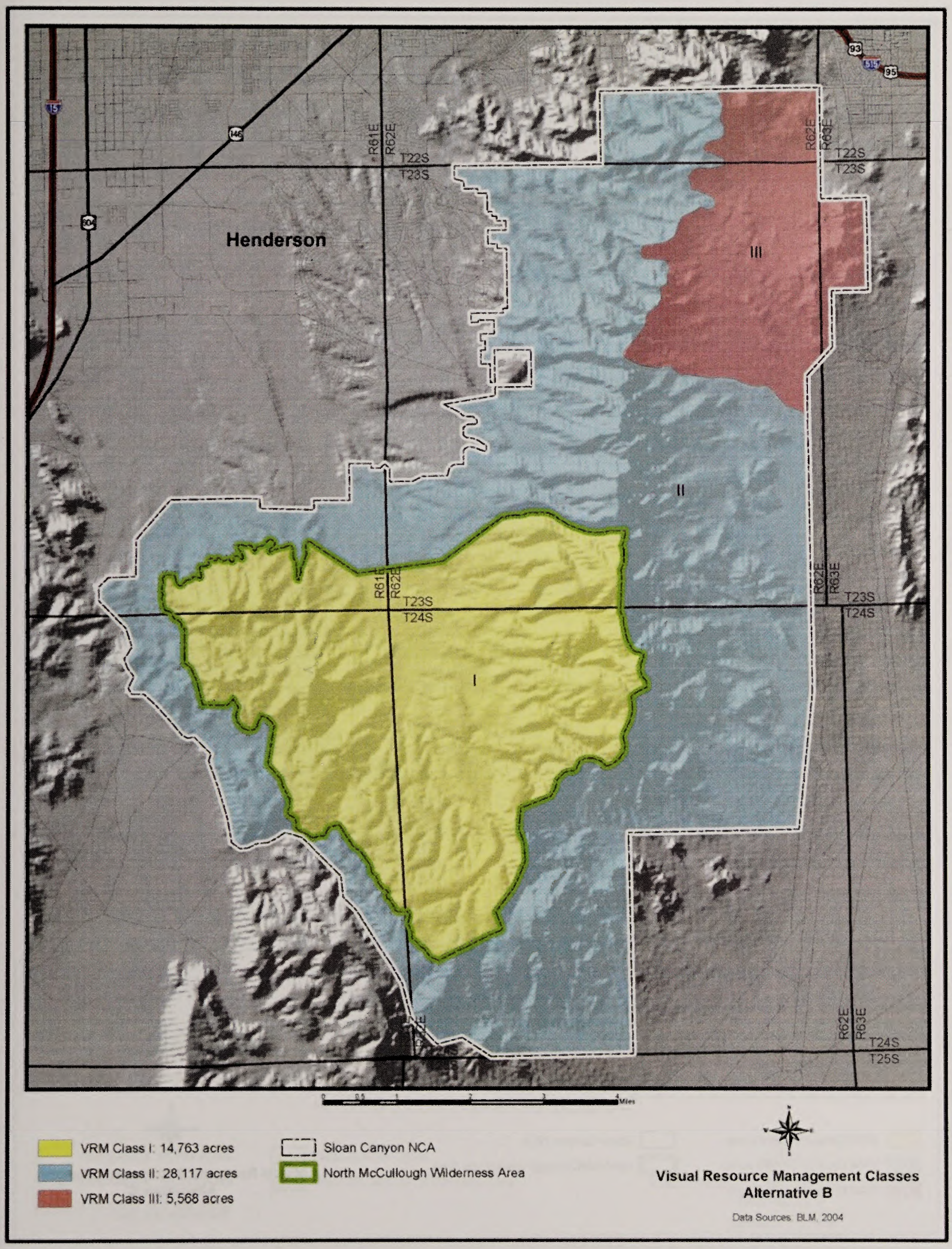


Figure J.4. Visual Resource Management Classes—Alternative C

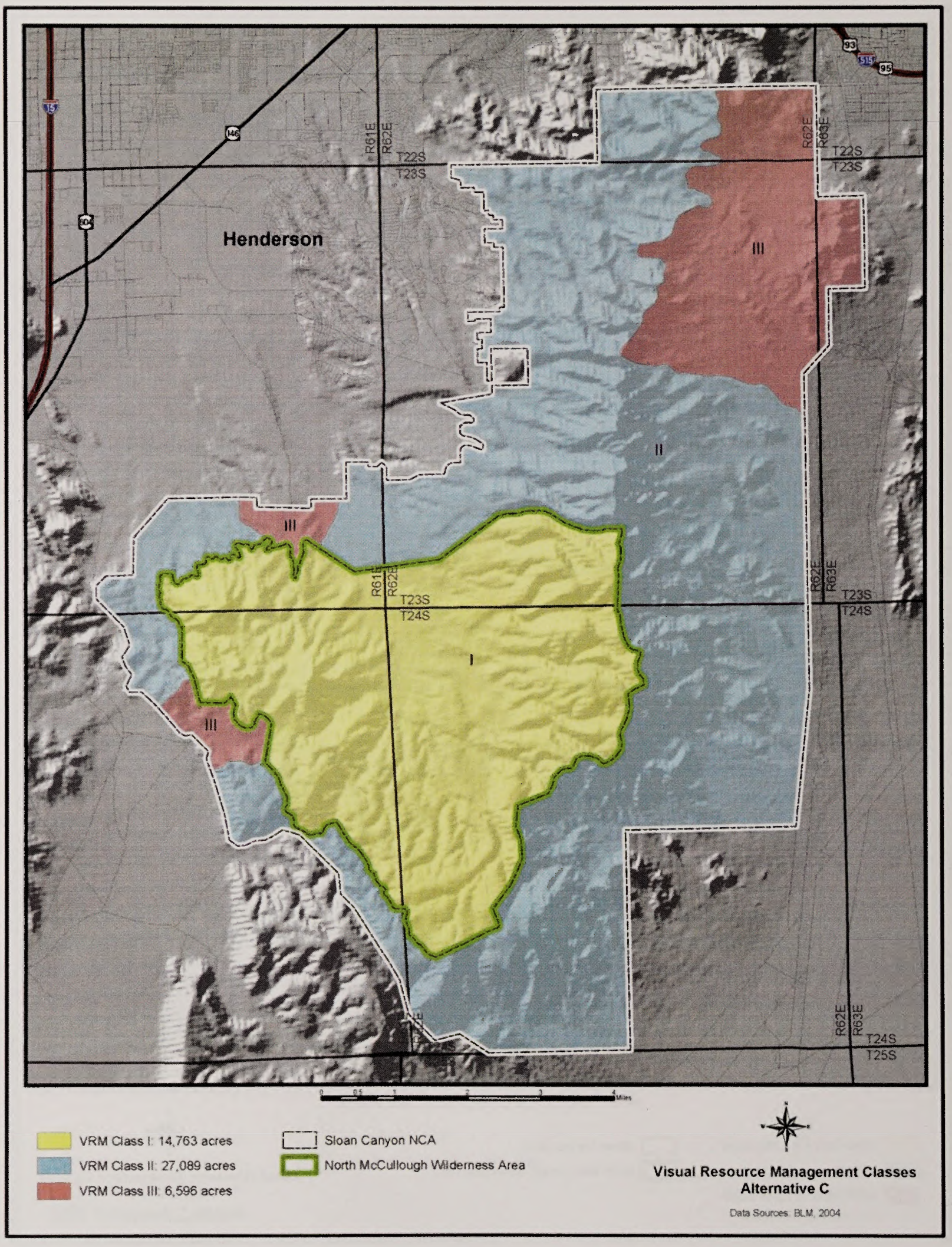
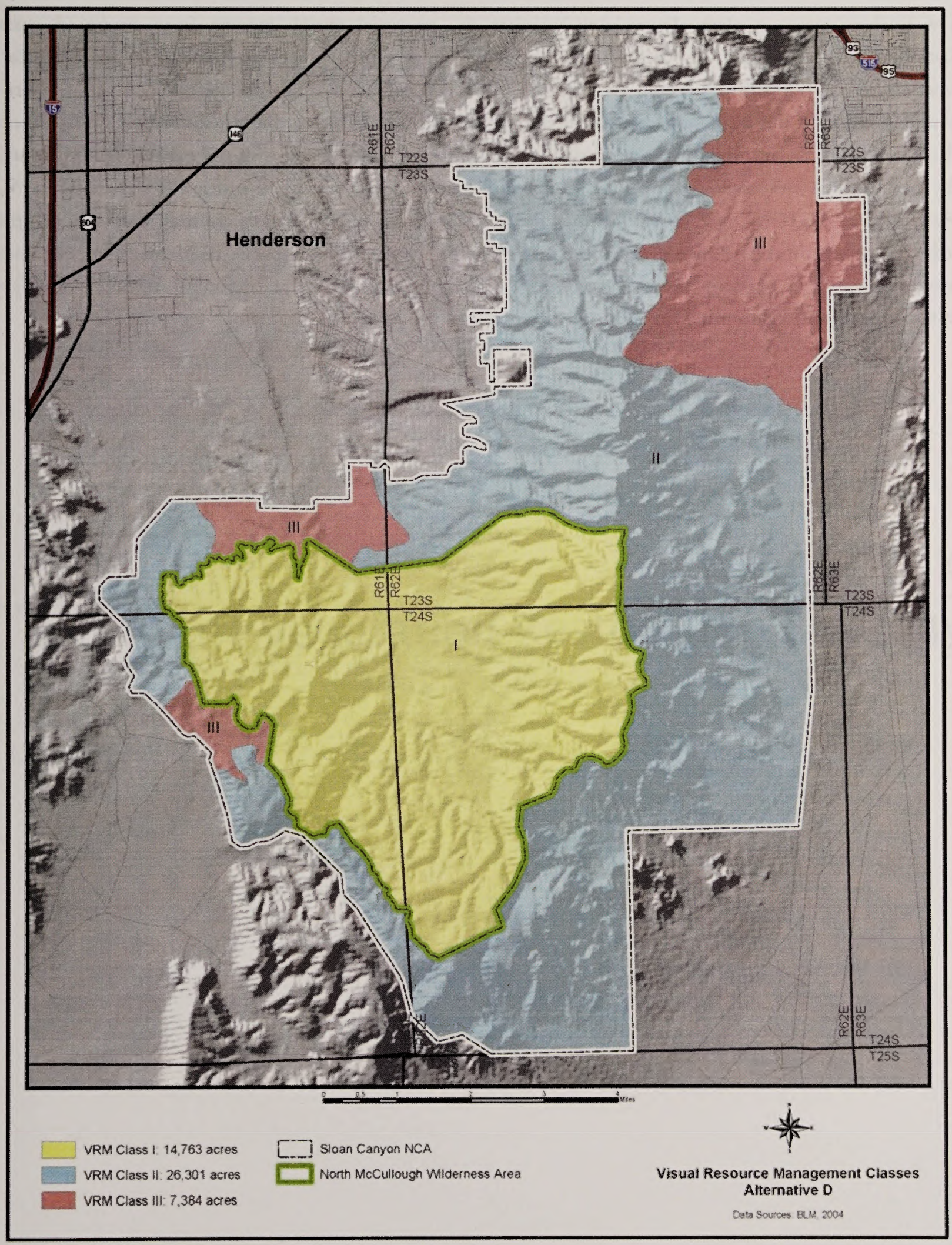


Figure J.5. Visual Resource Management Classes—Alternative D



VISUAL RESOURCE ANALYSIS

The analysis stage involves determining whether the potential visual impacts from proposed surface disturbing activities or developments would meet the management objectives established for the area or whether design adjustments would be required. Visual Contrast Ratings are determined at the start of planning, prior to the beginning of construction or disturbance. During the visual contrast rating process, BLM compares the features of the proposed project with the major features in the existing landscape using the basic design elements of form, line, color, and texture. The complete process is described in BLM Handbook H-8431-1, *Visual Resource Contrast Rating.* The results of the analysis are then used as a guide for reducing visual impacts. Once every attempt is made to reduce visual impacts, BLM managers can decide whether to accept or deny project proposals. Managers also have the option of attaching additional mitigation stipulations to bring the proposal into compliance.

APPENDIX K

Draft Vegetation Restoration Strategy

DRAFT VEGETATION RESTORATION STRATEGY

The primary goal of the Vegetation Restoration Strategy is to improve vegetation community conditions in the Sloan Canyon National Conservation Area (NCA) through the restoration of existing disturbances and the management and control of future disturbances. The overall objective of the restoration strategy is to improve habitat for sensitive species by restoring ecological processes and functionality. Consideration of recreation management, livestock grazing management, and wildlife habitat management, as well as vegetation and soils management, are necessary components of the restoration strategy.

Specific priorities for restoration, and objectives associated with each restoration priority, are outlined in Table K.1.

Table K.1. Restoration Goals and Objectives

Restoration Goals	Objectives of Restoration
Ecosystem Functionality	Water infiltration Hydrologic function Soil stability (including biological crusts) Vegetation structure
Habitat Restoration	Reducing fragmentation Increasing connectivity of native plant and animal populations
Route Camouflage	Restore natural vegetation community appearance Reduce inadvertent reuse of routes being restored
Aesthetics	Improve natural appearance of vegetation and meet VRM criteria
Existing Disturbance	Improve natural appearance of vegetation and meet VRM criteria

BACKGROUND

The vegetation resource in the Sloan Canyon NCA is representative of the Mojave Desert ecosystem, corresponding to Bailey's American desert and semi-desert province (Bailey 2005). The Draft Vegetation Community Inventory for the Sloan Canyon NCA (BLM 2004[c]) categorizes the vegetation resource of the NCA into four major vegetation communities described below. The distribution of these vegetation communities within the NCA is primarily related to geomorphic landform patterns and elevation and is associated with bajadas, slopes, dry washes, and mid-elevation slopes. The four vegetation communities identified within the NCA are described below.

Volcanic–Basalt Slope Community. This community is primarily located on upper elevations of the NCA associated with the basalt "spine" of the McCullough Range. Isolated patches of this vegetation community also occur in the NCA, primarily on slopes in the southwestern portion. Primary components of the community are rock, bursage, ephedra, and creosote. Secondary components are barrel cactus, perennial grass, and annual and perennial forbs.

Moderate Creosote (>%30 cover). This community is dispersed throughout the NCA in relatively level areas with less well-developed desert pavement. The primary component of the community is creosote. Secondary components are bursage, annual and perennial forbs, and annual grass.

Sparse Creosote/Bursage Mix. This community is the most prevalent vegetation community within the NCA. It is found on lower to mid-elevation slopes and contains level areas with well-developed desert pavement. The primary component of the community is creosote. Secondary components are bursage, annual and perennial forbs, and annual grass.

Desert Wash Communities. This community is distributed in the lower elevations and level areas of desert washes. Slopes in this vegetation community are level with well-sorted gravels and sands. Primary components are creosote, perennial grass, and annual and perennial forbs. Secondary components are cactus species, ephedra, and bursage.

Because of the extremely dry climate, perennial vegetation establishment is usually limited to years when precipitation occurs in higher than normal amounts. Annual plant species comprise a large ephemeral portion of each plant community. Annual plants grow only during the years when precipitation falls at the correct time and in a greater than normal amounts.

Because of mountainous conditions, limited water resources, and the lack of mineral resources, the Sloan Canyon NCA has experienced little grazing, off-highway vehicle (OHV) use, or mineral activities. Although vegetation communities in the NCA have physical and biological disturbances stemming from recreation use and past introductions of non-native plant species, erosion has been relatively low historically and vegetation cover is good. Disturbance to the vegetation resource in the NCA has increased in recent years because impacts from human activities related to urban expansion (e.g., recreational use such as hiking, OHV use, biking, including cross-country experiences) have continued to expand, increasing surface disturbance, vegetation loss, and the disruption of desert pavement. Surface disturbance occurring within the NCA increases the vulnerability of vegetation communities to invasive species infestation. Once colonized in disturbed areas, invasive species are capable of out-competing native species, including Special Status Species in undisturbed areas.

PURPOSE AND NEED

Vegetation in much of the NCA is relatively undisturbed. Restoration of existing disturbance and plans for controlling new disturbance are needed to direct restoration priorities within the Sloan Canyon NCA. By improving habitat for sensitive species and restoring ecological processes and functionality, the restoration strategy may result in the control of soil loss, maintenance of native plant communities, reduced vulnerability of vegetation communities to invasive species infestation, and enhancement of visual resources.

Project Prioritization

This vegetation restoration strategy will be applied to the entire NCA. BLM will work with various local organizations and agencies to promote education and assist in preventing the establishment of invasive species. Furthermore, scientific research and monitoring of Special Status Species will be encouraged and facilitated through the development of partnerships with universities and other educational groups for research and monitoring of Special Status Species.

Priority for restoration projects would be focused in Semi-Primitive Non-Motorized and Roaded Natural Management Emphasis Areas (MEA) to restore or improve conditions in native plant communities. Areas of special concern where restoration projects will be considered include habitat for Special Status Species, areas with a high risk of wildfire (e.g., wildland-urban interface areas), and the North McCullough Wilderness Area. For example, restoration projects to remedy wilderness intrusions or incursions in sensitive species habitat and areas of entry will take priority.

RESTORATION METHODS

This section addresses the general strategy for the control methods that are appropriate to achieve vegetation restoration objectives. Methods focus on restoring existing disturbance and controlling new disturbances by activities managed by BLM within the NCA.

Under this strategy, future disturbance from activities with the NCA, including the North McCullough Wilderness Area, should be minor. Any impacts from activities on sensitive vegetation habitat should be minimized. Disturbance from development of visitor facilities or new rights-of-way (ROW) within the NCA should be minimized, and the potential spread of non-native species into such disturbed areas should be reduced. Overall, vegetation management included under this strategy should move vegetation communities toward potential natural community by reducing habitat fragmentation, species diversity, structural diversity, and maintaining the long-term viability of the communities.

As strategy and policy are implemented, new methods will be considered and included in the strategy (e.g., biological control for tamarisk and Sahara mustard).

Existing Disturbance

BLM will apply the following strategy to maintain or improve the condition of vegetation on areas in the NCA currently affected by surface disturbance from OHV or other uses and development. The strategy emphasizes the improvement of protective ground cover and soil-holding capability in previously disturbed areas, which will reduce soil erosion and loss, reduce habitat fragmentation, and decrease the vulnerability of vegetation communities to invasive species infestation. About 100 miles of disturbance from roads, OHV trails, and foot trails have been identified within the NCA (see Figure K.1).

Non-Wilderness

Vegetation will be managed in all MEAs to promote native plant communities and restore the plant productivity of disturbed areas. Restoration (i.e., rehabilitation, reclamation, and revegetation) of existing disturbances will be managed for optimum species diversity by seeding native species, except where non-native species are appropriate.

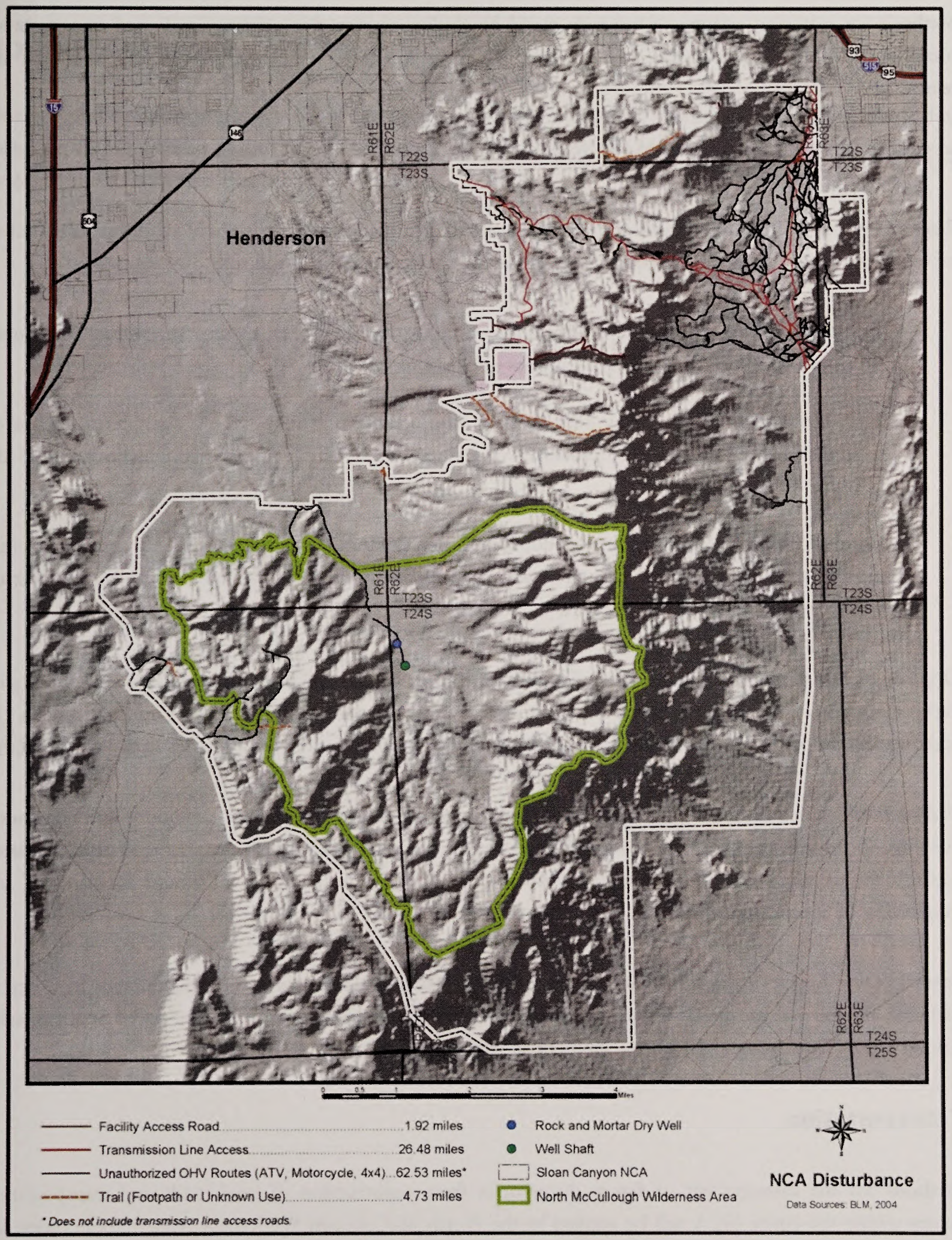
Existing trails established without BLM approval may be restored to natural conditions upon discovery. The restoration of nonauthorized trails established within the NCA will not only decrease the likelihood that these disturbed areas would become dominated by invasive plant species but also improve the condition of the vegetative resource by reducing fragmentation of vegetation communities and improving population viability over the long term. Priority for restoration projects would be focused in Semi-Primitive Non-Motorized and Roaded Natural zones to restore or improve conditions in native plant communities.

Special Status Species habitats will be maintained and protected to ensure suitable habitat conditions and population viability. Scientific research and monitoring of Special Status Species will be encouraged, and partnerships with universities and other educational groups will be developed to facilitate research on and monitoring of Special Status Species.

North McCullough Wilderness Area

Existing disturbance within the NCA includes social trails from recreation; vehicle tracks; simple, man-made structures; and trash. Methods for restoring existing disturbance within the entire NCA will be applied to the North McCullough Wilderness Area. However, restoration of disturbed areas in the Wilderness would be accomplished primarily through natural processes. BLM may conduct rehabilitation projects within the Wilderness Area on a case-by-case basis to restore human-caused disturbances and/or alterations (e.g., noxious and invasive weeds), which would decrease the likelihood that disturbed areas would become dominated by invasive plant species.

Figure K.1. Sloan Canyon NCA Disturbance



Transportation

Methods for restoring existing disturbance could be applied to restoring existing roads and transportation routes. For example, roads and unauthorized parking areas may be restored to natural conditions and revegetated.

FUTURE DISTURBANCE

Restoration will be used to remediate future vegetation disturbance. The threshold of disturbance before minimizing impacts to native plant communities for each MEA could be as follows:

- **Primitive MEA.** Any surface disturbing activity that may alter natural vegetation community processes or reduce the viability of species populations within the NCA.
- **Non-Motorized MEA.** Any surface disturbing activity that may have a short-term impact on natural vegetation community processes or reduce the viability of species populations within the NCA.
- **Roaded Natural, Roaded Developed, Developed MEA.** Any surface disturbing activity that may have a long-term impact on natural vegetation community processes or have a long-term impact on species populations within the NCA.

Ongoing efforts to map, monitor, and eradicate invasive plant species will be continued. BLM will work with various partners to promote education and assistance in preventing the establishment of invasive species. In addition, landscaping of all developed areas within the NCA would use only plant species native to the NCA.

BLM will maintain and protect sensitive species habitats to ensure suitable habitat conditions and population viability. Scientific research and monitoring of Special Status Species will be encouraged and facilitated through the development of partnerships with universities and other educational groups for research and monitoring of Special Status Species.

Special Status Species critical habitat will be avoidance areas for disturbance or development in order to maintain suitable habitat conditions and population viability. Site-specific surveys for Special Status Species habitat will be required before any development activities.

Transportation

Methods for the management of future disturbance from construction of new roads and transportation routes within the entire NCA will be applied to the North McCullough Wilderness Area. Applications for

new ROWs would be considered on a case-by-case basis if evaluation shows that the ROW would benefit the NCA.

NOXIOUS AND INVASIVE WEEDS

Noxious and invasive weeds would be managed under integrated weed management principals, including following BLM's *Partners Against Weeds—An Action Plan for the BLM* (BLM 1996) and the general restoration strategy for the Las Vegas Field Office.

LITERATURE CITED

Bailey, R.G. 1995. Description of the Ecoregions of the United States. Second Edition.

Miscellaneous Publication 1391. Washington, D.C. United States Forest Service.

Bureau of Land Management (BLM). October 2004. Draft Vegetation Community Inventory—Sloan Canyon National Conservation Area. BLM Las Vegas Field Office.

Bureau of Land Management (BLM). 1996. *Partners Against Weeds—An Action Plan for the BLM.*

APPENDIX L

Notice of Intent

NOTICE OF INTENT

DEPARTMENT OF THE INTERIOR

Bureau of Land Management

[NV-050-1610-DO]

Notice of Intent To Prepare a Resource Management Plan and Associated Environmental Impact Statement for the Sloan Canyon National Conservation Area

AGENCY: Bureau of Land Management, Interior.

ACTION: Notice of Intent (NOI) to prepare a Resource Management Plan (RMP) and associated Environmental Impact Statement (EIS) for the Sloan Canyon National Conservation Area.

SUMMARY: Notice is hereby given that the Bureau of Land Management (BLM) intends to prepare an RMP with an associated EIS for the Sloan Canyon National Conservation Area as directed in the Clark County Conservation of Public Land and Natural Resources Act of 2002 (Pub.L. 107-282). The planning area encompasses approximately 48,438 acres of public land within Clark County, Nevada. The Plan will fulfill the needs and obligations set forth by the National Environmental Policy Act (NEPA), the Federal Land Policy and Management Act (FLPMA), Public Law 107-282, and BLM policies. The public scoping process will identify planning issues and develop planning criteria, including evaluation of the existing Resource Management Plan (RMP). The BLM will work collaboratively with interested parties to develop and analyze management alternatives, taking into account local, regional, and national needs and concerns.

DATES: This notice initiates the public scoping process. Comments and concerns on issues can be submitted in writing to the address listed below and will be most useful if BLM receives them within 30-days. All public meetings will be announced through the local news media, newsletters, and the BLM web site at http://www.nv.blm.gov/vegas at least 15 days prior to the event. The minutes and list of attendees for each meeting will be available to the public and open for 30 days to any participant who wishes to clarify the views they expressed.

Public Participation: Public meetings will be held throughout the scoping, plan development, and EIS process. Interested state, local, and tribal governments are invited to participate. Public scoping meetings will be held in Las Vegas, Henderson, and Boulder City, Nevada. An outreach plan, including a public mailing list will be utilized and expanded to achieve the maximum possible early awareness and participation. In addition to the scoping process and on-going public participation plan, a formal opportunity to participate will occur upon publication of the draft RMP/EIS.

ADDRESSES: Written comments should be sent to the BLM, Charles H. Carroll, Las Vegas Field Office, 4701 North Torrey Pines Drive, Las Vegas, Nevada 89130, telephone (702) 515-5291. Documents pertinent to this RMP may be examined at the Las Vegas Field Office at the address listed above.

FOR FURTHER INFORMATION CONTACT: For further information contact Charles H. Carroll, Las Vegas Field Office Environmental Protection Specialist and Team Lead for the BLM at Bureau of Land Management, Las Vegas Field Office, 4701 North Torrey Pines Drive, Las Vegas, Nevada 89130, telephone (702) 515-5291.

SUPPLEMENTARY INFORMATION: The geographic area covered by the plan includes only those lands established as the Sloan Canyon National Conservation Area by Public Law 107-282, which is approximately 48,438 acres. A map is available for review at the Las Vegas Field Office, 4701 North Torrey Pines Drive, Las Vegas, NV 89130.

An interdisciplinary approach will be used to develop the RMP and EIS in order to consider the variety of resource issues and concerns identified. Disciplines involved in the planning process will include specialists with expertise in public outreach, planning/NEPA, cultural resources, paleontology, wilderness management, desert ecology, special status species, recreation, public interpretation, visual resource management, and urban interface. Other areas of expertise will be added as necessary.

Preliminary issues and management concerns have been identified by BLM personnel, other agencies, and in meetings with individuals and user groups. They represent the BLM's knowledge to date on the existing issues and concerns with current management. The major issue themes that will be addressed in the planning effort include:

1. How will the cultural, natural, and wilderness resources be interpreted for visitors to the planning area and non-visitors who may have an interest in learning more about the resources?

2. How will the cultural, natural, and wilderness resources of the Sloan Canyon NCA and the North McCullough Wilderness Area be preserved for the current and future generations?

3. How will the management of the Sloan Canyon NCA be integrated in a manner that is compatible with the plans and needs of Native American tribes, the City of Henderson, Clark County, and other Local, State, and Federal agencies?

4. How will the Sloan Canyon NCA Resource Management Plan be responsive to continually changing conditions, stemming primarily from an increasing urban interface?

5. How will the Sloan Canyon NCA Resource Management Plan ensure the long-term protection of the area's resources while providing appropriate scientific research opportunities?

6. How will visitors' activities and uses be managed in a manner that preserves the cultural, natural and wilderness resources while providing reasonable access to and enjoyment of the Sloan Canyon NCA?

7. What facilities and infrastructure will be needed to provide visitor services, information, and administration of the Sloan Canyon NCA?

After gathering public comments on what issues the plan should address, the suggested issues will be placed in one of three categories:

1. Issues to be resolved in the plan;

2. Issues resolved through policy or administrative action; or

3. Issues beyond the scope of this plan.

Rationale will be provided in the plan for each issue placed in category two or three. In addition to these major issues, a number of management questions and concerns will be addressed in the plan. The public is encouraged to help identify these questions and concerns during the scoping phase.

Comments, including names and street addresses of respondents, will be available for public review at the Las Vegas Field Office during regular business hours, 7:30 a.m. to 4:30 p.m., Monday through Friday, except holidays, and may be published as part of the EIS. Individual respondents may request confidentiality. If you wish to withhold your name or street address from public review or from disclosure under the Freedom of Information Act, you must state this prominently at the beginning of your written comment. Such requests will be honored to the extent allowed by law. All submissions from organizations and businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, will be available for public inspection in their entirety.

Dated: August 15, 2003.

Angie Lara,
Acting Field Manager.
[FR Doc. 03-23440 Filed 9-12-03; 8:45 am]

BILLING CODE 4310-HC-P

APPENDIX M

Agency Correspondence

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Nevada Fish and Wildlife Office
1340 Financial Boulevard, Suite 234
Reno, Nevada 89502
(775) 861-6300 ~ Fax: (775) 861-6301

December 22, 2003
File No. 1-5-04-SP-428

Ms. Dana Purrone
Booz, Allen, and Hamilton, Inc.
299 South Main Street Ste 1400
Salt Lake City, Utah 84111

Dear Ms. Purrone:

Subject: Species List for the Sloan Canyon National Conservation Area, Clark County, Nevada

This is in response to your letter received on November 25, 2003, regarding the 48,438 acre Sloan Canyon National Conservation Area, Clark County, Nevada. The following federally listed species may occur in or near the vicinity of the subject project area:

- Desert tortoise (*Gopherus agassizii*) (Mojave population), threatened

This list fulfills the requirement of the Fish and Wildlife Service (Service) to provide information on listed species pursuant to section 7(c) of the Endangered Species Act of 1973, as amended (Act), for projects that are authorized, funded, or carried out by a Federal agency.

Based on the information provided in your correspondence, the proposed project is within the range of the threatened desert tortoise. However, designated critical habitat for the desert tortoise does not occur within the proposed project area. If the proposed project is authorized, funded, or carried out by a Federal agency, the Federal agency or its designated representative is responsible for determining whether or not the proposed project may affect a listed species.

The Nevada Fish and Wildlife Office no longer provides species of concern lists. Most of these species for which we have concern, are also on the sensitive species list for Nevada maintained by the State of Nevada's Natural Heritage Program (Heritage). Instead of maintaining our own list, we are adopting Heritage's sensitive species list and partnering with them to provide distribution data and information on the conservation needs for sensitive species to agencies or project proponents. The mission of Heritage is to continually evaluate the conservation priorities of native plants, animals, and their habitats, particularly those most vulnerable to extinction or are in serious decline. Consideration of these sensitive species and exploring management

alternatives early in the planning process can provide long-term conservation benefits and avoid future conflicts.

For a list of sensitive species by county, visit Heritage's website at www.heritage.nv.gov. For a specific list of sensitive species that may occur in the project area, you can obtain a data request form from the website or by contacting Heritage at 1550 East College Parkway, Suite 137, Carson City, NV 89706, 775-687-4245. Please indicate on the form that your request is being obtained as part of your coordination with the Service under the Act. During your project analysis, if you obtain new information or data for any Nevada sensitive species, we request that you provide the information to Heritage at the above address.

Also, we are concerned that the proposed project may impact plant species listed as sensitive under the Heritage Program. These species may also be listed as critically endangered by the State of Nevada under Nevada Revised Statutes (NRS) 527.260-300. For these species, no member of its kind may be removed or destroyed at any time by any means except under special permit issued by the State Forester (NRS 527.270). It should be noted that many of the plant species on the State's critically endangered list are not federally listed by the Service because of the protection afforded to them under the State law. Consideration of these species during project impact evaluation and planning, as well as early coordination with the State is important to assist with species conservation efforts and to prevent the need for Federal listing actions in the future.

Finally, based on the Service's conservation responsibilities and management authority for migratory birds under the Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 U.S.C. 703 et seq.), we are concerned about potential impacts the proposed project may have on migratory birds in the project area. Direct impacts to migratory birds on project lands and indirect impacts to migratory birds on adjacent areas should be considered during project evaluation.

Enclosure A provides a discussion of the responsibilities Federal agencies have under section 7(c) of the Act and the conditions under which a biological assessment must be prepared by the lead Federal agency or its designated non-Federal representative. If the proposed project is authorized, funded, or carried out by a Federal agency, and if it is determined that a listed species may be affected by the proposed project, the Federal agency should initiate consultation pursuant to 50 CFR § 402.14. Informal consultation may be utilized prior to a written request for formal consultation to exchange information and resolve conflicts with respect to a listed species. If a biological assessment is required, and it is not initiated within 90 days of your receipt of this letter, you should informally verify the accuracy of this list with our office. If, through informal consultation or development of a biological assessment, or both, you determine that the proposed action is not likely to adversely affect the listed species, and the Service concurs in writing, then the consultation process is terminated and formal consultation is not required.

Please reference File No. 1-5-04-SP-428 in future correspondence concerning this species list. If you have any questions regarding this correspondence or require additional information, please contact Shawn Goodchild in our Southern Nevada Field Office at (702) 515-5230.

Sincerely,

Robert D. Williams
Field Supervisor

Enclosure

cc:
Assistant Field Manager, Las Vegas Field Office, Bureau of Land Management, Las Vegas, Nevada
Regional Forester, Southern Region, Nevada Division of Forestry, Las Vegas, Nevada

ENCLOSURE A

FEDERAL AGENCIES' RESPONSIBILITIES UNDER SECTIONS 7 (a) and (c)
OF THE ENDANGERED SPECIES ACT

SECTION 7 (a); Consultation/Conference

Requires:

1) Federal agencies to utilize their authorities to carry out programs to conserve **endangered and threatened species**;

2) Consultation with the Fish and Wildlife Service (Service) when a Federal action may affect a listed endangered or threatened species to insure that any action authorized, funded or carried out by a Federal agency is not likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat. The process is initiated by the Federal agency after determining the action may affect a listed species or critical habitat;

3) Conference with the Service when a Federal action is likely to jeopardize the continued existence of a proposed species or result in destruction or adverse modification of proposed critical habitat.

SECTION 7 (c): Biological Assessment - Major Construction Activity 1/

Requires Federal agencies or their designees to prepare a Biological Assessment (BA) for major construction activities. The BA analyzes the effects of the action on listed and proposed species. The process begins with a Federal agency requesting from the Service a list of proposed and listed threatened and endangered species. The BA should be completed within 180 days after its initiation (or within such a time period as is mutually agreeable). If the BA is not initiated within 90 days of receipt of the list, the accuracy of the species list should be informally verified with the Service. No irreversible commitment of resources is to be made during the BA process which would foreclose reasonable and prudent alternatives to protect endangered species. Planning, design, and administrative actions may proceed; however, no construction may begin.

We recommend the following for inclusion in the BA:

1. An onsite inspection of the area affected by the proposal which may include a detailed survey of the area to determine if the species or suitable habitat are present.

2. A review of literature and scientific data to determine species distribution, habitat needs, and other biological requirements.

3. Interviews with experts, including those within the Service, State conservation departments, universities, and others who may have data not yet published in scientific literature.

4. An analysis of the effects of the proposal on the species in terms of individuals and populations, including consideration of cumulative effects of the proposal on the species and its habitat.

5. An analysis of alternative actions considered.

6. Documentation of study results, including a discussion of study methods used, any problems encountered, and other relevant information.

7. Conclusion as to whether or not a listed or proposed species will be affected.

Upon completion, the BA should be forwarded to our office with a request for consultation, if required.

1/ A construction project (or other major undertaking having similar physical impacts) is a major Federal action significantly affecting the quality of the human environment as referred to in NEPA (42 U.S.C. 4332 (2) C).